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1. INTRODUCTION

The primary instrument for the determination of temperatures on the thermodynamic scale is the gas thermometer. But the complexity of the equipment and the labor of correcting the observations for the lack of ideality of the apparatus and of the thermometric fluid led to the search for an instrument requiring less computation for conversion of the measured property into temperature and one that is convenient in form, reproducible in its indications, and useful over a wide range of temperatures. Callendar [1] showed that the resistance of a platinum wire is a suitable property for the definition of a temperature scale. His design of a support for the platinum resistor, procedures for calibration, and formula for converting resistance into temperature are essentially those in use today.

The Callendar equation (see Table III) expresses the resistance of a platinum wire as a quadratic function of the thermodynamic Centigrade temperature. Three fixed points whose thermodynamic temperatures

[1] H. L. Callendar, Phil. Trans. Roy. Soc. London, *178A*, 160-239 (1887).

are known must be used to determine the three constants (R_0, α, and δ) of the formula. It is desirable though not necessary that two of these be the fixed points that determine the size of the Centigrade degree: the ice point (0° C.) and the steam point (100° C.). Callendar proposed the sulphur boiling point for the third.

Before the indications of a secondary instrument, as the platinum resistance thermometer, can be accepted with confidence for the realization of the thermodynamic temperature scale, it is necessary to determine: (1) the reproducibility of the temperature scale of a single instrument; (2) the agreement of the scale of one such instrument with that of another; (3) the thermodynamic temperatures of the calibration points; and (4) the agreement of the scale of the thermometer with the thermodynamic scale at temperatures removed from the calibration points.

The first two of the above questions will be considered in a later publication. However, it might be mentioned that the present investigation shows that four platinum resistance thermometers, recently calibrated, indicate the same temperature in the range 0° to 450° C. with a maximum spread of about 0.001° C. As regards the last two questions we are concerned here with the temperature range 0° to 450° C.

Callendar believed that his equation would give temperatures on the thermodynamic Centigrade scale to 1° C. from 0° to 500° C. Certainly the deviations are much smaller than this. But how much smaller and even the sign of the deviation has not been settled. In 1941 Mueller[2] wrote ". . . gas thermometry in the range 0° to 660° C. is not yet sufficiently precise to determine that the formula is inadequate."

Comparisons of the indications of the platinum resistance thermometer with those of gas thermometers above 0° C. have proceeded along three lines.

1. In the range 0° to 100° C. temperatures measured on the platinum resistance scale have been compared with those indicated by standard mercury thermometers which in turn had been calibrated against a standard hydrogen gas thermometer through the investigations of Chappuis.[3] The deviations of the platinum resistance from the gas scale found by Chappuis and Harker[4] did not show any definite trend with temperature and seem to be within the accuracy (0.02° C.) of the

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[2]E. F. Mueller, *Temperature*, pp. 162-179. Reinhold Publishing Company, New York (1941).

[3]P. Chappuis, Trav. et Mém. Bureau Int., *6*, 125 + 187 pp. (1888); ibid., *13*, 66 pp. (1907).

[4]P. Chappuis and J. A. Harker, Trav. et Mém. Bureau Int., *12*, 90 pp. (1902); Phil. Trans. Roy. Soc. London, *194A*, 37-134 (1900); P. Chappuis, Phil. Mag., (6) *3*, 243-247 (1902).

mercury thermometers of that time; those found by Dickinson and Mueller[5] and by Hall[6] did not exceed 0.003° C. and were within the accuracy of the mercury thermometers.

2. Above 100° C. and up to 1100° C. the platinum scale has been compared with the gas scale through the measurement of the temperatures of certain fixed points, as the freezing points of tin, zinc, antimony, copper, silver, and gold, the boiling points of naphthalene, benzophenone, etc. These points as well as the sulphur boiling point have been determined[4,7-15] a number of times on the thermodynamic scale by the use of gas thermometers, usually with nitrogen as the thermometric substance. Comparison of the platinum resistance thermometer scale with that of the gas thermometer through the intermediary of fixed points were made by Waidner and Burgess,[16] Adams and Johnston,[17] and Moser.[18] Waidner and Burgess concluded that the platinum resistance scale agreed with the gas scale from 0° to 1100° almost within the reproducibility of the latter; but Adams and Johnston, and Moser found that a third term should be added to the Callendar formula for the higher temperatures. Moser adds to the right-hand side of the Callendar equation (see Table III) the term with γ having the values + 0.0027, +

$$\gamma \frac{t}{100}\left(\frac{t}{100} - 1\right)\left(\frac{t}{444.6} - 1\right)$$

[5]H. C. Dickinson and E. F. Mueller, Bull. Bureau Standards, *3*, 641-661 (1907).

[6]J. A. Hall, Phil. Trans. Roy. Soc. London, *229A*, 1-48 (1929-30).

[7]H. L. Callendar and E. H. Griffiths, Phil. Trans. Roy. Soc. London, *182A*, 119-157 (1891).

[8]L. Holborn and A. L. Day, Am. J. Sci., (4) *8*, 165-193 (1899); ibid., (4) *10*, 171-206 (1900); ibid., (4) *11*, 145-148 (1901); Wied. Ann. der Physik, *68*, 817-852 (1899); Ann. der Physik, (4) *2*, 505-545 (1900); ibid., (4) *4*, 99-103 (1901).

[9]A. Jaquerod and E. Wassmer, J. de chim. phys., *2*, 52-78 (1904).

[10]A. Jaquerod and F. L. Perrot, Arch. sci. phys. et nat., (4) *20*, 28-58, 128-158, 454-455, 506-529 (1905).

[11]L. Holborn and S. Valentiner, Ann. der Physik, (4) *22*, 1-48 (1907).

[12]N. Eumorfopoulos, Proc. Roy. Soc. London, *81A*, 339-362 (1908); ibid., *90A*, 189-203 (1914); H. L. Callendar and H. Moss, Proc. Roy. Soc. London, *83A*, 106-108 (1909).

[13]A. L. Day and J. K. Clement, Am. J. Sci., (4) *26*, 405-463 (1908).

[14]A. L. Day and R. B. Sosman, Am. J. Sci., (4) *29*, 93-161 (1910); ibid., (4) *33*, 517-533 (1912); Carnegie Institution Publication No. *157* (1911); J. de Physique, (5) *2*, 727-749, 831-844, 899-911 (1912); Ann. der Physik, (4) *38*, 849-869 (1912).

[15]P. Chappuis, Trav. et Mém. Bureau Int., *16*, 44 pp. (1917).

[16]C. W. Waidner and G. K. Burgess, Bull. Bureau Standards, *6*, 149-230 (1909-10); ibid., *7*, 1-9 (1911).

[17]L. H. Adams and J. Johnston, Am. J. Sci., (4) *33*, 534-545 (1912).

[18]H. Moser, Ann. der Physik, (5) *6*, 852-874 (1930).

0.0042, and + 0.0053 for the three thermometers used by him. The value of γ was determined by use of a fourth calibration point: the melting point of gold, 1063° C.

3. Direct comparison of platinum resistance thermometers against gas thermometers have been made by a number of investigators. Chappuis and Harker[4] compared the two scales to about 600° C. and Harker[19] compared them to 1000° C. both using nitrogen gas thermometers. Harker concluded that "the divergence of the two scales only exceed the probable error at the higher part of the range." Holborn[20] and Holborn and Henning[21] compared the platinum scale against those of the nitrogen, hydrogen, and helium gas thermometers from 150° to 450° C. The average differences at each temperature do not exceed 0.01° C. and the uncertainty in the gas thermometry was placed at 0.02° C., a rather optimistic estimate. Dickinson and Mueller[22] compared platinum resistance thermometers against the nitrogen gas thermometer of Day and Sosman[14] at 306°, 445°, and 630°. Henning and Hense[23] compared platinum resistance thermometers against a helium gas thermometer finding the difference t(gas) - t(platinum) to be + 0.007° at 20° - 0.005° at 50° and + 0.004° at 80° C.

The result of the vast amount of work done on the scale of the platinum resistance thermometer can be summed up in the statement that to at least 450° C. the Callendar formula is much better than 1°, possibly as good as 0.1° C. But the actual deviations of the platinum scale from the thermodynamic scale are not known nor is the sign of the deviations well established.

In 1927 the Seventh General Conference of Weights and Measures adopted[24] an International Temperature Scale which in the range 0° to 660° C is based on the indications of a standard platinum resistance thermometer calibrated at the ice, steam, and sulphur boiling points (to which the value 444.6° C. was assigned), and used in conjunction with the Callendar formula. It was stated that the "Thermodynamic Centigrade Scale . . . is recognized as the fundamental scale to which all temperature measurements should ultimately be referable"; and that the International Temperature Scale "conforms with the thermodynamic scale as closely as possible with present knowledge." Cer-

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[19] J. A. Harker, Phil. Trans. Roy. Soc. London, *203A*, 343-384 (1904).

[20] L. Holborn, Ann der Physik, (4) *6*, 242-258 (1901).

[21] L. Holborn and F. Henning, Ann. der Physik, (4), *26*, 833-883 (1908); ibid., (4) *35*, 761-774 (1911).

[22] H. C. Dickinson and E. F. Mueller, J. Wash. Acad. Sci., *2*, 176-180 (1912).

[23] F. Henning and W. Hense, Z. Physik., *6*, 215-223 (1921).

[24] G. K. Burgess, Bureau of Standards J. of Research, *1*, 635-640 (1928).

tain details of construction of a standard platinum resistance thermometer are specified, and the purity and physical condition of the platinum are controlled by the specification that the ratio of resistances R_t/R_0 shall be not less than 1.390 for $t = 100°$ C. and not less than 2.645 for $t = 444.6°$ C.

We have constructed[25] standard platinum resistance thermometers for the realization of the International Temperature Scale and studied their calibration at the ice point,[26] steam point,[27] and sulphur boiling point.[28] The reproducibility of these fixed points and the effect of pressure on the boiling points were investigated and a method of making the boiling points independent of the atmospheric pressure proposed. The boiling point of mercury[29] was also investigated as a possible fixed point in thermometry.

In earlier publications we have described[30] a duplicate nitrogen gas thermometer for realization of the thermodynamic temperature scale in the range 0° to 450° C. and derived[31] equations for correction of the observations for the imperfection of the apparatus and of the thermometric fluid. During the course of the study of the temperature scale, determinations[32] of the thermal expansion and compressibility of vitreous silica and of the thermal dilation of mercury were made, and three methods[33] of determining the capillary constant of mercury in a manometer were investigated in order that the capillary depressions and meniscus volumes of mercury may be computed from Blaisdell's[34] tables.

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[25]J. A. Beattie, D. D. Jacobus, and J. M. Gaines, Jr., Proc. Am. Acad. Arts Sci., *66*, 167-184 (1930).

[26]J. A. Beattie, T.-C. Huang, and M. Benedict, Proc. Am. Acad. Arts Sci., *72*, 137-155 (1938).

[27]J. A. Beattie and B. E. Blaisdell, Proc. Am. Acad. Arts Sci., *71*, 361-374 (1937).

[28]J. A. Beattie, M. Benedict, and B. E. Blaisdell, Proc. Am. Acad. Arts Sci., *71*, 327-360 (1937).

[29]J. A. Beattie, B. E. Blaisdell, and J. Kaminsky, Proc. Am. Acad. Arts Sci., *71*, 375-385 (1937).

[30]J. A. Beattie, D. D. Jacobus, J. M. Gaines, Jr., M. Benedict, and B. E. Blaisdell, Proc. Am. Acad. Arts Sci., *74*, 327-342 (1941).

[31]J. A. Beattie, M. Benedict, and J. Kaye, Proc. Am. Acad. Arts Sci., *74*, 343-370 (1941).

[32]J. A. Beattie, E. B. Blaisdell, J. Kaye, H. T. Gerry, and C. A. Johnson, Proc. Am. Acad. Arts Sci., *74*, 371-388 (1941).

[33]J. A. Beattie, B. E. Blaisdell, and J. Kaye, Proc. Am. Acad. Arts Sci., *74*, 389-397 (1941).

[34]B. E. Blaisdell, J. Math. and Phys., *19*, 186-245 (1940).

2. COURSE OF THE PRESENT INVESTIGATION

A total of 394 comparisons of temperatures on the International Temperature Scale as realized by four standard platinum resistance thermometers were made with temperatures on the thermodynamic scale as determined from the indications of two nitrogen gas thermometers, designated Red and Green. The first 110 runs were preliminary in nature and were designed to study the performance of the equipment. During these runs various changes in apparatus, procedure, and methods of calibration were made. The results of the final measurements, Runs 111 to 394, are given in Table XI.

A detailed description of the apparatus has been given[30] together with calibration methods, tests for defects, performance of the various components, determination of purity of the nitrogen, and procedure for a run.

TABLE A
Scheme of the Runs

Approximate ice point pressure stand. mm. Hg.	Run Nos.	Nominal run temperature, °C. Int.												
		0	25	50	75	100	150	200	250	300	365.58[a]	400	444.6[b]	Total
		Number of runs made at each temperature												
1. Runs Made in the Oil Thermostat														
1000	111-135	11	2	2	2	8								25
750	136-167	14	2	2	2	10	2							32
450	168-199	14	2	2	2	8	4							32
600	200-225	12				8	6							26
333	226-251	12				8	6							26
2. Runs Made in the Nitrate Thermostat														
333	252-308					28	3	3	3	5	3	12		57
600	309-356					26	2	2	2	4	2	10		48
450	357-394					18	2	2	2	4	2	8		38

[a]Normal mercury boiling point.
[b]Normal sulphur boiling point.

The scheme of the runs is given in Table A. All observations were reduced in the same manner and from the same calibrations and properties of materials with one exception: after Run 379 the vacuum over the long arms of the main manometer was accidently broken and the mercury in the long arm was visibly fouled. Hence for Runs 380 through 394 we used the capillary constant $a = 2.48$ cm. for the mercury in the long arms as determined[30] after the completion of Run 394; we continued to use $a = 2.66$ for the mercury in the short arms.

3. IDENTIFICATION OF THE THERMOMETER SPACES

The following brief discussion is given to identify the various parts of the thermometer system; detailed descriptions have been given elsewhere.[30, 31] In Figure 1 is given a sketch showing the main thermometer system AS and the auxiliary thermometer system A_aS_a for one of our gas thermometers. The main thermometer system from A to E and the auxiliary thermometer system from A_a to E_a were enclosed in steel cases to which the same external pressure p_e of nitrogen was applied. Convection currents were eliminated in the region of large thermal gradient by plugs of asbestos cord.

The parts of the main thermometer system are as follows:

1. The vitreous silica Bulb b extended from A to C and included a small volume consisting of the graded seal from vitreous silica to pyrex glass.

2. The Dead Space 1 extended from C to D. It was of pyrex and included the region of large thermal gradient. The calculation of the exact length of capillary to be associated with the auxiliary thermometer was given in an earlier paper.[31]

3. The Dead Space 2, of stainless steel, extended from D to E.

4. The Dead Space 3 extended from E to H. The capillaries were of stainless steel and the valve FG was of ordinary steel. The point H was clamped to a steel rod screwed into the steel top of the thermostat vessel. The vertical distance from H to the index mark in the short arm of the main thermometer was measured for each thermostat temperature.

5. The Dead Space 4, a stainless steel capillary, extended from H to I. At I the capillary entered the air thermostat around the main manometer tubes.

6. The Dead Space 5 extended from I to the mercury surface S in the lower manometer tube.

The parts of the auxiliary thermometer system are:

1. The Bulb A_aD_a of pyrex glass.

2. The Dead Space D_aS_a, consisting in part of a stainless steel capillary and in part of pyrex glass.

4. REDUCTION OF THE OBSERVATIONS

The average of the values of the six observations that constituted a run[30] were combined to give the quantities measured in each run listed in Table I.

The vertical distance H from the crown of the mercury meniscus in the short arm of the main manometer to the crown in the long arm, the the heights h_1 and h_2 of the mercury menisci in the long and short arms, respectively, and the vertical distance h_3 from the crown of the meniscus to the index point in the short arm are given by the relations:

$$\begin{aligned} H &= D_1 - D_2 + m(M_1 - M_2 - S_1 + S_2), \\ h_1 &= m(M_1 - N_1), \\ h_2 &= m(M_2 - N_2), \\ h_3 &= m(P_2 - M_2), \end{aligned} \tag{1}$$

where:

M_1 [M_2] = average reading of the micrometer head of the upper [lower] telescope when the cross-hair of the ocular was set on the crown of the mercury meniscus in the long [short] arm of the manometer.

N_1 [N_2] = average reading on bottom of the meniscus.

P_2 = average reading on the index point in the short arm.

S_1 [S_2] = average reading on scale division D_1 [D_2].

D_1 [D_2] = scale division nearest cross-hair of upper [lower] telescope when set on M_1 [M_2]

m = number of units on the scale for one complete turn of the micrometer head, same for both telescopes.

The pressures in the auxiliary thermometer system and in the metal cases surrounding the thermometer bulbs were determined from the vertical heights H_a of the mercury column in the auxiliary manometer, and H_B in a barometer. Each height was determined to 0.1 mm. of mercury or better. The long arm of the auxiliary manometer was evacuated, but one end of the external manometer was open to the atmosphere.

The temperatures t_s, t_2, t_3, t_4, t_{Hga}, t_{da}, t_e of the scale, the Dead Spaces 2, 3, 4, the mercury in the auxiliary manometer, the dead space of the auxiliary thermometer, and the room, respectively, were measured by calibrated mercury thermometers that could be read to 0.01° C. The average temperature t_{Hg} of the mercury in the main manometer was computed from the indications of five standard platinum resistance thermometers enclosed in the manometer housing, the lowest thermometer reading the temperature t_5 of the Dead Space 5. The temperature t_b of the bulb of the main thermometer was the average of the indications of four standard platinum resistance thermometers. All indications of the gas thermometer were corrected to one of the nominal temperatures shown in Table A.

In Table II are given the calibration quantities and properties of materials used in reducing the observations on the gas thermometers. These are employed in the relations of Tables IV to X.

Table III gives the Callendar equation for converting the measured resistance R_t of a platinum resistance thermometer into temperature when R_0 α and δ are known. Since the equation is implicit in t, a provisional value of t is first computed with an estimated value substituted into the last term of the expression, and then a second approximation made with the aid of the provisional value. Usually no further calculation is required to find t to 10^{-6} °C. In order to set the thermostat temperature at any desired value, we can compute the corresponding resistance from the relation:

$$R_t = R_0 \left\{ 1 + \alpha \left[t - \delta \left(\frac{t}{100} \right) \left(\frac{t}{100} - 1 \right) \right] \right\}$$

In Table III are also given the relations for computing the values of α and δ from calibration measurements and the equations found in earlier investigations[26,27,28,29] for the effect of pressure on the various equilibrium temperatures. In the main body of Table III are given the measured values of α and δ for the platinum resistance thermometers used to measure the temperature t_b of the bulbs of the gas thermometers on the International Temperature Scale. The resulting values of t_b are listed in Columns 3, 4, and 5 of Table XI. Table III also gives a list of the runs in which each thermometer was used, and the dates of calibration of the thermometer bridge. The bridge corrections were considered to vary linearly with time between calibration dates, and to be constant during each calendar month and have the value computed for the middle of the month.

In the reduction of the gas thermometer observations the pressure p' in standard millimeters of mercury at the mercury surface in the short arm of the manometer was computed from the height H of the mercury column by the relation:

$$p' = (H + \delta_1 - \delta_2 + \delta_3) F, \qquad (2)$$

where:

δ_1 = capillary depression (mm.) of mercury in the long arm of the manometer.

δ_2 = capillary depression (mm.) in the short arm.

δ_3 = correction (mm.) for ruling error of the scale, its thermal expansion and stretch, and the compressibility of mercury.

F = factor for reducing mercury heights to 0° C. and standard gravity.

The correct pressure p at the nominal temperature t_r that would have been observed if the gas thermometer had been an idealized instrument[31] is:

$$p = p' + \delta_4 + \delta_5 + \delta_6 + \delta_7 + \delta_8 \qquad (3)$$

where:

δ_4 = gravitational correction (standard mm. of mercury).

δ_5 = correction (standard mm. of mercury) for variation in volume of the system on the assumption that the thermometric gas is ideal.

δ_6 = correction (standard mm. of mercury) for variation in temperature of the system on the assumption that the gas is ideal.

δ_7 = correction (standard mm. of mercury) to $\delta_5 + \delta_6$ for the imperfection of the gas.

δ_8 = correction (standard mm. of mercury) to the nominal temperature of the run.

Values of δ_1, δ_2, δ_3, and F are listed in Table IV. The corrections δ_1 and δ_2 depend on the capillary constant a of mercury, the height h of the meniscus and the bore d of the manometer tubes, the latter being constant for each short arm and a function of H for the long arms. The diameters of the manometer tubes are listed in Table II-3. The capillary depression of mercury as a function of h and d are given for $a = 2.66$ and $a = 2.48$ in Table II-2(b). From these tables the values of δ_1 and δ_2 listed in Table IV were derived. The correction δ_3 depends for a given equipment on the height H of the mercury column and the temperature t_s of the scale. The data for evaluating the coefficients of the terms of δ_3 are given in Tables II-1 and II-2(a). Data for computing the factor F, which depends on the temperature t_{Hg} of the mercury column and on local gravity, are given in Tables II-2(a) and II-1(b).

The outline of the computation of the value of the reciprocal temperature averaged with respect to the area of the capillary CD, Fig. 1, for the region of large thermal gradient is given in Table V. This quantity is $1/T_1$ for the Dead Space 1. The theory of the use of an auxiliary thermometer for evaluating $1/T_1$ was developed in an earlier paper[3 1]. The value of $1/T_1$ is listed in Table XI for each run, but the details of the calculation for each run are not given. For every run we measured H_a, $t_{Hg\,a}$, and $t_{d\,a}$ for each of the two auxiliary thermometer systems, one for each main thermometer. From these and the calibration function $\phi_{a\,n}$ it is possible to compute $1/T_1$ from the equations given in Table V.

The equations and tables for computing the gravitational correction δ_4 are given in Table VI. The correction consists of a sum of terms, one for each thermometer space, and depends on the ratio of the vertical height l of the column of gas to the average Kelvin temperature T of the space. The length of each thermometer space (except l_4) at 27° C. and its variation with temperature are given in Table II-5. In Table VI are given: the ratio $l/_b T_b$ for the bulb space at each nominal

temperature of a run; the length l_4 for each nominal temperature; l_1 as a function of $1/T_1$; and l_2, l_3, and l_5, which did not vary by as much as 0.05 mm. during the course of the investigation. Each height was rounded off to the nearest 0.1 mm. at each temperature. Since the actual temperature of a run was within 0.01° C. of the nominal temperature with only a few exceptions, the values of l_b/T_b and l_4 for the nominal temperature were used for all runs at a given temperature. To l_5 must be added the distance h_3 from the index mark to the crown of the mercury meniscus in the short arm of the manometer. The reciprocal temperature $1/T_1$ was obtained directly from the auxiliary thermometer, while T_b, T_2, T_3, T_4, and T_5 were computed from the corresponding centigrade temperatures on the International Scale and the corrections listed in Table II-7.

The equations and tables for correction δ_5 are given in Table VII. This correction is combined with δ_6 for the Dead Space 1[31]. The volumes of the various thermometer spaces, their coefficients of thermal dilation and the compressibility and dilation with difference between internal and external pressure of the main thermometer bulbs are given in Table II-4. In Table VII are listed values permitting quick computation of the volume $V(t_b, p', p_e)$ of the thermometer bulb at any temperature t_b near a nominal temperature t_r, internal pressure p', and external pressure p_e. The error introduced by the use of p' as the pressure at the center of the bulb instead of p'plus the pressure of the column of gas from the mercury surface to the center of the bulb is considered later. The variation of the volumes of the Dead Spaces 2 to 5 with temperature are also given in Table VII. The volume V_5 is a function of h_3 and of h_2. The covolume of the mercury meniscus depends on the capillary constant a of the mercury, the radius d_2 of the tube, and the height h_2 of the meniscus. The tube diameters are listed in Table II-3, and values of the ratio of the covolume of a mercury meniscus to the volume of an equivalent cylinder of height h_2 are given in Table II-2(c) for $a = 2.66$, various tube diameters, and meniscus heights. The values of V_C - 0.1 given in Table VII are obtained from those of Table II-2(c) by interpolation. In order to reduce the size of the correction δ_6 for the Dead Space 5, we took the standard value V_{5n} to be the volume above a horizontal plane through the index mark in the short arm of the manometer plus 0.1 ml. The temperature variation of V_5 included the variation of the additive 0.1 ml. with temperature. We did not apply a temperature correction to V_C nor to the area of the cylinder $a_5 h_3$ (the largest value of h_3 was 0.16 mm.); nor did we apply a correction for the effect of variations in p' on the volumes of the dead spaces. The effect of these approximations are considered later.

Table VIII gives the equation for computation of the correction δ_6.

All quantities entering into the calculation have been discussed earlier.

Table IX gives the equation and tables for calculation of the correction δ_7. The values of the coefficient B for nitrogen for the required temperatures were computed from the equation given in Table II-6.

The necessary information for computing the correction δ_8 is given in Table X. The equation for the mean coefficient α_v of thermal pressure increase at constant volume from 0° to 100° C. as a function of the pressure p_0 at 0° is given in Table II-6. This value was used to evaluate $(\partial p/\partial T)_v$ at all temperatures. A discussion of this approximation is given later.

Table XI lists our experimental results and the corrections for the Runs 111 through 394. Each run is a duplicate comparison of the indications of four (in general) standard platinum resistance thermometers with those of two nitrogen gas thermometers, each having approximately the same ice-point pressure. Thus two rows constitute one run. All values to the left of Column 7 apply to both gas thermometers; those to the right apply to the individual gas thermometer, Red or Green. The last column of Table XI gives the final corrected pressure for the nominal temperature given in the first column. These values will be treated in a later paper for determination of the Kelvin temperature of the ice-point and of the thermodynamic Centigrade temperature corresponding to each nominal temperature, the latter being on the International Temperature Scale.

5. EFFECT OF ERRORS

Table XII shows the spread in the values of certain observed quantities throughout each series of runs of the same ice-point pressure. There are also given the values of the observed heights h_2 and h_3 (see Table VII) during the calibrations of the dead space volumes V_5 by the gas expansion method[30].

The corrections δ_4 to δ_7 consist of sums of terms, one for each thermometer space. The values of the individual terms in each summation are given in Table XIII for runs at 600 mm. ice-point pressure and for the bulb temperatures 0°, 100°, and 444.6° C. This gives an idea of the size of the terms entering into each sum.

The corrections δ_4, δ_6, and δ_7 depend explicitly on the Kelvin temperatures of the thermometer bulb and the various dead spaces. The scale assumed in the computation of the corrections is given in Table II-7. Table XIV gives the deviations of this scale from that found in the present investigation and the error (correct minus computed value) introduced into δ_4, δ_6, and δ_7 by the use of an incorrect Kelvin scale for runs at 0°, 100°, and 444.6° C. each for 600 mm. ice-

point pressure. The error in δ_6 is proportional to the ice-point pressure at each temperature.

Table XV gives the errors produced in H for Run 323 R by the probable errors in the observed quantities, including that produced by optical defects in the manometer tubes.[30] This run is for a nominal bulb temperature of 444.6° C. and an ice-point pressure of 600 mm. where errors produce, in general, the largest effect.

Table XVI lists the errors produced in the pressure p' at the mercury surface in the short arm of the manometer for Run 323 R by the probable errors in the observed quantities and in the properties of materials. The effect of uncertainties in the properties of materials tend to cancel in the computation of gas temperatures since the latter involves ratios of pressures or of differences in pressures.[31] An error in the value of local gravity produces no effect on computed gas temperatures and hence is not considered. Errors in the coefficient of thermal expansion α_s of the scale and the coefficient of thermal dilation α_{Hg} of mercury produce an effect on gas temperatures only in so far as the temperature t_s of the scale and that t_{Hg} of the mercury column vary during a series of runs of the same ice-point pressure. From Table XII we find that in all runs of the same ice-point pressure t_s varies less than 3.5° C. and t_{Hg} less than 0.5° C. The errors given for p' are not those produced in reducing the scale temperature to 20° C. and the mercury column to 0° C. but those introduced in reducing the scale temperature by 3.5° C. (say from 30.5° to 27°) and the mean temperature of the mercury by 0.05° C. (say from 27.5° to 27°).

Table XVII gives the errors in the corrected pressure p for Run 323 R produced by errors in observed quantities and in the properties of materials. The effect of an error in the diameter d_2 of the short arm of the manometer is largely cancelled by the method of calibration of the dead space volume V_5. The value listed in Table XVII is computed for the variation of h_2 and h_3 for Run 323 R from the average values of these quantities during the calibration runs, given in Table XII. In a similar manner uncertainties in the capillary constant a_{Hg} of mercury would largely be eliminated. However, we assumed that a_{Hg} might have varied as much as 1% during the course of the measurements and the effect listed is the total error produced. The rather large error assigned to α_v is caused by the fact that we used the mean value of α_v from 0° to 100° C. at each ice-point pressure for the entire temperature range.

Under Constant Errors of Table XVII are given effects produced by corrections considered but not made. The dead spaces, particularly that in the short arm of the manometer, stretch with increasing internal pressure. This effect could not be measured and the calculation of the stretch is difficult. The theory of elasticity gives the approximate relation:

$$\Sigma \Delta V_i = 10^{-7} (p' - 760) \text{ ml},$$

where p' is in mm. of mercury and the atmospheric pressure is taken as constant.

Each of the thermometer bulbs was sealed to a pyrex capillary (Dead Space 1) through a graded seal. The volume V_b of the bulb included this graded seal (0.33 ml. for Red system, 0.38 ml. for Green system) and 0.01 ml. of the pyrex capillary. In the computations of V_b as a function of temperature we assumed these spaces to have the coefficient of thermal dilation of vitreous silica. The error shown in Table XVII is computed on the assumption that the coefficient of dilation of the graded seal was the average of those of pyrex glass and vitreous silica.

The errors of the formulas were given in an earlier paper.[31]

As regards the effect of temperature on the volume of the Dead Space 5 we assumed the entire correction including those on a_5 and V_C (see Table VII) was given by making the 0.1 ml. put into the standard volume the same function of temperature as pyrex glass.

In the equation for the volume V_b of the thermometer bulb, Table VII, we assumed that the pressure in the bulb was the same as p'. The largest error is 0.04 mm. (Run 111) and this would have an entirely negligible effect on V_b.

The probable error of the corrected pressure for Run 323 R is 0.013 millimeters of mercury.

6. CORRECTIONS NOT APPLIED

No correction was made for adsorption. Hartley, Henry, and Whytlaw-Gray[35] measured the adsorption of nitrogen on vitreous silica at 21° C. and pressures up to one atmosphere. They found that the adsorbed gas came off rapidly when the pressure was reduced and that the previous history of the surface had no effect on adsorption. Calculations made from their results indicate that if all of the gas adsorbed on the surface of one of our bulbs (area 550 sq. cm., volume 1000 ml.) at 21° C. were given off at 444.6° C. the pressure would be increased 6.6×10^{-4} mm. for an ice-point pressure of 600 mm.

Weber, Keesom, and Schmidt[36] give an equation for the thermomolecular pressure difference and applied it to tubes of 1 to 2 mm. bore filled with helium. Application of the same equation to a tube of 0.71 mm. bore filled with nitrogen gives the result that the pressure differ-

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[35] G. A. R. Hartley, T. H. Henry, and R. Whytlaw-Gray, Trans. Faraday Soc., *35*, 1452-61 (1939).

[36] S. Weber, W. H. Keesom, and G. Schmidt, Leiden Comm. No. *246a*, 1-16 (1936).

ence between 444.6° and 27° C. is 2.5 x 10^{-4} mm. for a pressure of 1572 mm. (ice-point pressure 600 mm.) and 4.6 x 10^{-4} mm. for a pressure of 871 mm. (ice-point pressure 333 mm.).

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7. SUMMARY

A total of 284 comparisons of the indications of four standard platinum resistance thermometers with those of two nitrogen gas thermometers has been made in the temperature range 0° to 444.6° C. The temperatures employed were: 0, 25, 50, 75, 100, 150, 200, 250, 300, 356.58 (mercury boiling point), 400, 444.6° C. (sulphur boiling point). The ice-point pressures in the two gas thermometers were: 1000 (to 100° C. only), 750 (to 150° C. only), 600, 450, 333 mm., approximately. The present paper is concerned with the details of the reduction of the observations to give the corrected pressure in each gas thermometer for each nominal temperature.

A discussion of the effect of errors in observed quantities and in the properties of materials is included.

8. TABLES

TABLE I

Quantities Measured in Each Run

H = vertical distance (mm.) from crown of mercury meniscus in short arm of main manometer to crown in long arm.
h_1 = height (mm.) of mercury meniscus in long arm of main manometer.
h_2 = height (mm.) of meniscus in short arm of main manometer.
h_3 = vertical distance (mm.) from crown of meniscus in short arm of main manometer to index mark in short arm.
t_s = mean temperature (°C. Int.) of the scale.
t_{Hg} = mean temperature (°C.Int.) of mercury in main manometer.
t_b = mean temperature (°C. Int.) of main thermometer bulb.
t_r = nominal temperature (°C. Int.) of the run.
t_i = mean temperature (°C. Int.) of the i-th dead space of the main thermometer system (i = 2,3,4,5).

TABLE I (Concluded)

H_a = vertical distance (mm.) from crown of mercury meniscus in short arm of auxiliary manometer to crown in long arm.
t_{Hga} = mean temperature (°C.Int.) of mercury in auxiliary manometer.
t_{da} = mean temperature (°C.Int.) of the dead space of the auxiliary thermometer.
H_e = vertical height (mm.) of mercury column in external manometer.
H_B = vertical height (mm.) of mercury column in barometer.
t_e = temperature (°C. Int.) of mercury in external manometer and barometer (mean room temperature).

TABLE II

Calibration Quantities and Properties of Materials

1. Scale

Standard conditions:

The scale was calibrated in a horizontal position at the U. S. National Bureau of Standards.[1] In our measurements it was hung vertically from the 2000 mm. mark.

t_{sn} = 20° C. (Int.), calibration temperature of the scale.
D_2 = 100 mm., scale division nearest to horizontal plane through index mark in short arm of main manometers.
g_n = 980.665 dynes/gm., standard gravity.

(a) Correction for Ruling Error

ϵ = correction at 20° C. The length of an interval is its nominal value plus the correction.

Interval	ϵ	Interval	ϵ
mm.	mm.	mm.	mm.
0 - 100	+0.0014	0 - 1100	+0.0206
0 - 200	.0016	0 - 1200	.0218
0 - 300	.0033	0 - 1300	.0256
0 - 400	.0046	0 - 1400	.0255
0 - 500	.0095	0 - 1500	.0305
0 - 600	.0103	0 - 1600	.0314
0 - 700	.0101	0 - 1700	.0320
0 - 800	.0146	0 - 1800	.0368
0 - 900	.0158	0 - 1900	.0392
0 - 1000	.0172	0 - 2000	.0398

(b) Corrections for Thermal Expansion and for Stretch Caused by its own Weight.

α_S = 1.5 x 10^{-6} °C.$^{-1}$ (Int.), mean coefficient of linear thermal expansion[1] from 20° to t_s °C.

[1,2,3,4] See references at end of Table II.

TABLE II (Continued)

ρ_s = 8.00 x 10^{-3} gm./mm.^{3}, density of invar.
E_s = 1.45 x 10^{10} dynes/mm.^{2}, Young's modulus for invar.
g_l = 980.400 dynes/gm., gravity at the laboratory.

2. Mercury

Standard conditions:

One standard millimeter of mercury is 1/760 of the pressure exerted by a column of mercury in vacuuo at 0° C. and standard gravity, 980.665 dynes/gm.

All pressures are stated in standard mm. of mercury.

(a) Correction for Thermal Dilation and for Compressibility

$\alpha_{Hg} = \left[181.456 + 9.205 \times 10^{-3} t + 6.608 \times 10^{-6} t^2 + 67.320 \times 10^{-9} t^3\right] \times 10^{-6}$ °C.$^{-1}$ (Int.), mean coefficient of thermal dilation[2] of mercury from 0° to t° C.

β_{Hg} = 4 x 10^{-6} atm.$^{-1}$, mean coefficient of cubical compressibility of mercury from 0 to 3 atm. at mean room temperature, 27° C.

(b) Correction for the Capillary Depression of Mercury

d = diameter of the manometer tube.
h = height of the mercury meniscus.
a = capillary constant of the mercury.
δ = capillary depression.[3].

d, mm. / h, mm.	20.5	20.6	20.7	20.8	20.9
		δ, mm., for a = 2.66 cm.			
0.8	0.0195	0.0191	0.0186	0.0181	0.0177
0.9	.0218	.0213	.0208	.0203	.0198
1.0	.0240	.0234	.0229	.0223	.0218
1.1	.0261	.0255	.0249	.0243	.0237
1.2	.0282	.0276	.0269	.0263	.0256
1.3	.0302	.0295	.0288	.0281	.0274
1.4	.0321	.0314	.0306	.0299	.0291
1.5	.0339	.0331	.0323	.0316	.0308
1.6	.0356	.0348	.0340	.0332	.0323
1.7	.0372	.0364	.0355	.0346	.0337
1.8	.0387	.0378	.0369	.0360	.0351
1.9	.0401	.0392	.0383	.0373	.0364
2.0	.0414	.0404	.0395	.0385	.0376
2.1	.0425	.0415	.0406	.0396	.0386
2.2	.0436	.0425	.0415	.0405	.0395

TABLE II (Continued)

d, mm. / h, mm.	21.0	21.1	21.2	21.3	21.4	21.5
			δ, mm., for a = 2.66 cm.			
0.8	0.0172	0.0168	0.0164	0.0160	0.0156	0.0152
0.9	.0193	.0188	.0184	.0179	.0175	.0170
1.0	.0213	.0207	.0202	.0197	.0193	.0188
1.1	.0231	.0226	.0221	.0215	.0210	.0205
1.2	.0249	.0243	.0238	.0232	.0226	.0220
1.3	.0267	.0261	.0255	.0248	.0242	.0236
1.4	.0284	.0277	.0271	.0264	.0258	.0251
1.5	.0300	.0293	.0286	.0279	.0272	.0265
1.6	.0315	.0308	.0301	.0293	.0286	.0279
1.7	.0329	.0322	.0314	.0306	.0299	.0291
1.8	.0342	.0334	.0326	.0318	.0311	.0303
1.9	.0355	.0347	.0338	.0330	.0322	.0314
2.0	.0366	.0357	.0349	.0341	.0332	.0324
2.1	.0376	.0367	.0358	.0350	.0341	.0333
2.2	.0385	.0376	.0367	.0358	.0349	.0341

d, mm. / h, mm.	21.0	21.1	21.2	21.3	21.4	21.5
			δ, mm., for a = 2.48 cm.			
0.8	0.0118	0.0115	0.0112	0.0109	0.0106	0.0103
0.9	.0132	.0128	.0125	.0122	.0119	.0115
1.0	.0145	.0141	.0138	.0134	.0130	.0127
1.1	.0157	.0153	.0150	.0146	.0142	.0138
1.2	.0170	.0165	.0161	.0157	.0153	.0149
1.3	.0181	.0177	.0172	.0168	.0163	.0159
1.4	.0192	.0187	.0183	.0178	.0173	.0168
1.5	.0202	.0197	.0192	.0187	.0182	.0177
1.6	.0212	.0207	.0202	.0196	.0191	.0186
1.7	.0221	.0216	.0210	.0205	.0199	.0194
1.8	.0229	.0224	.0218	.0212	.0207	.0201
1.9	.0237	.0231	.0225	.0219	.0213	.0208
2.0	.0244	.0237	.0231	.0225	.0219	.0213
2.1	.0249	.0243	.0237	.0231	.0225	.0218
2.2	.0255	.0248	.0242	.0235	.0229	.0223

(c) Correction for the Variation of the Covolume of the Mercury Meniscus

V_C = the gas volume[3] beneath a horizontal plane through the crown of the meniscus.

b = ratio of V_C to the volume of a cylinder of area equal to that of the manometer tube and height equal to that of the meniscus.

TABLE II (Continued)

d, mm. / h, mm.	20.5	20.6	20.7	20.8	20.9	21.0
			b for a = 2.66 cm.			
1.0	0.3053	0.3043	0.3033	0.3023	0.3013	0.3003
1.1	.3034	.3024	.3014	.3004	.2994	.2984
1.2	.3013	.3003	.2993	.2983	.2973	.2963
1.3	.2990	.2980	.2970	.2960	.2950	.2940
1.4	.2965	.2955	.2945	.2935	.2925	.2915
1.5	.2937	.2927	.2917	.2907	.2897	.2887
1.6	.2906	.2896	.2886	.2876	.2866	.2856
1.7	.2873	.2863	.2853	.2843	.2833	.2823
1.8	.2838	.2828	.2818	.2808	.2798	.2788
1.9	.2800	.2790	.2780	.2770	.2760	.2750
2.0	.2759	.2749	.2739	.2729	.2719	.2709
2.1	.2716	.2706	.2696	.2686	.2676	.2666
2.2	.2671	.2661	.2651	.2641	.2631	.2621

3. Manometer Tubes of the Main Manometer

d_1 = diameter of long arm of main manometer at the scale mark $H + D_2 = H +$ 100 mm.

d_2 = diameter of short arm of main manometer at the scale mark $D_2 = 100$ mm.

a_5 = area of short arm of main manometer at the index mark.

H	d_1 (Red)	d_1 (Green)	H	d_1 (Red)	d_1 (Green)
mm.	mm.	mm.	mm.	mm.	mm.
300	21.05	21.16	1100	21.32	21.06
400	21.23	21.20	1200	21.34	21.15
500	21.26	21.17	1300	21.28	21.23
600	21.35	21.14	1400	21.24	21.29
700	21.39	21.12	1500	21.24	21.26
800	21.39	21.26	1600	21.27	21.19
900	21.34	21.42	1700	21.23	21.17
1000	21.28	21.28			

	Red	Green
d_2 (mm.)	20.823	20.951
a_5 (ml./mm.)	0.3405	0.3447

4. Volumes of the Main Thermometer System

Standard conditions:

$t_{bn} = 0°$ C., standard calibration temperature for the main thermometer bulb.

$t_{in} = 27°$ C. (Int.), standard calibration temperature for the i-th dead space of the main thermometer system (i = 1,2,3,4,5).

TABLE II (Continued)

The thermometer bulbs were calibrated at an internal and an external pressure of 760 mm. The dead space volumes were assumed independent of internal and external pressure.

(a) Values of the Volumes at Standard Conditions

V_{bn} = volume of the main thermometer bulb at 0° C. and an internal and external pressure of 760 mm.

V_{in} = volume of the i-th dead space at 27° C. (Int.) (i = 1,2,3,4).

V_{5n} = 0.1 ml. plus the volume at 27° C. (Int.) of the fifth dead space above a horizontal plane through the index mark in the short arm of the main manometer.

Thermometer Space	V_n(Red)	V_n(Green)
	ml.	ml.
V_{bn}	986.6958	1015.8008
V^{1n}	0.1991	0.1787
V^{2n}	0.0618	0.0480
V^{3n}	0.1191	0.1109
V^{4n}	0.7700	0.7000
V^{5n}	2.2248	2.4355
	990.0706	1019.2739

(b) Correction for Thermal Dilation and for Pressure Effects

$\alpha_l = (l - l_n)/l_n(t - t_n)$, mean coefficient of linear thermal expansion from t_n to t (l is the length at t, l_n that at t_n).

$\alpha_l' = \frac{1}{l_n}\frac{dl}{dt}$, true coefficient of linear thermal expansion at t.

$\alpha = (V - V_n)/V_n(t - t_n)$, mean coefficient of thermal dilation from t_n to t. (V is volume).

$\alpha' = \frac{1}{V_n}\frac{dV}{dt}$, true coefficient of thermal dilation at t.

Equations:

$$\alpha_l' = \frac{d\left[\alpha_l(t - t_n)\right]}{dt}$$

$$\alpha = 3\alpha_l\left[1 + \alpha_l((t - t_n)\right]$$

$$\alpha' = 3\alpha_l\left[1 + \alpha_l(t - t_n)\right]^2$$

Properties of materials:

$$\alpha_l\ (SiO_2) = \frac{(t + 157.361) \times 10^{-6}}{412.109 + 0.88121t + 0.00126792t^2}\ °C.^{-1}\ (\text{Int.});\ t_n = 0° C.$$

TABLE II (Continued)

$\frac{\beta\ (SiO_2)}{760} = (3.55 - 8 \times 10^{-4} t) \times 10^{-9}$ mm.$^{-1}$; $t =$ °C. (Int.)

α (steel) = 30×10^{-6} °C.$^{-1}$ (Int.); $t_n = 27°$ C. (Int.)

α (stainless steel) = 48×10^{-6} °C.$^{-1}$ (Int.); $t_n = 27°$ C. (Int.)

α (pyrex glass) = 9.6×10^{-6} °C.$^{-1}$ (Int.); $t_n = 27°$ C. (Int.)

Calibration quantities:

α_b = mean coefficient of thermal dilation of the bulb[4] of the main thermometer from 0° to t_r °C. (Int.).

α_b' = true coefficient of thermal dilation of the bulb at t_r °C.

α_i = mean coefficient of thermal dilation of the i-th dead space of the main thermometer system from 27° C. to t_i °C. (Int.) (i = 1,2,3,4,5).

β_b = mean coefficient of cubical compressibility[4] of the thermometer bulb from 0 to 3 atm. at t_r °C.

γ_b = mean dilation[4] of the bulb caused by a difference between internal and external pressure $(p' - p_e)$ at t_r °C.

Thermometer Space	Thermometer System	Composition	α °C.$^{-1}$(Int.)	$\frac{\beta}{760}$ mm.$^{-1}$	γ ml./mm.
b	Red	Vitreous Silica	$1.005\alpha(SiO_2)$	$\beta(SiO_2)/760$	$[0.0714\text{-}1.3\times10^{-5}t]\times10^{-3}$
b	Green	Vitreous Silica	$\alpha(SiO_2)$	$\beta(SiO_2)/760$	$[0.0822\text{-}1.3\times10^{-5}t]\times10^{-3}$
1	Both	Pyrex glass	9.6×10^{-6}	----	----
2	Both	Stainless steel	48×10^{-6}	----	----
3	Both	1/3 Stainless steel + 2/3 steel	36×10^{-6}	----	----
4	Both	Stainless steel	48×10^{-6}	----	----
5	Both	1/16 Stainless steel + 15/16 pyrex glass	12×10^{-6}	----	----

5. Lengths

Standard conditions:

All lengths were measured at 27° C. The main gas thermometer bulbs were suspended by rods extending from the junction of the dead spaces 3 and 4 to the thermostat top.

Calibration quantities.

l_{bn} = vertical distance at 27° C. from center of the main thermometer bulb to the beginning of the first dead space.

l_{1n}, l_{2n}, l_{3n} = vertical heights at 27° C. of the consecutive dead spaces 1,2,3 extending from the end of l_b to the point of suspension of the thermometer bulb.

TABLE II (Continued)

l_4 = vertical height at 27° C. from point of suspension of the thermometer bulb to the point of entrance of the stainless steel capillary into the air thermostat around the main manometer.

l_{5n} = vertical distance at 27° C. from the end of l_4 to a horizontal plane through the index mark in the short arm of the manometer.

(a) Values of the Lengths at Standard Conditions

Space	Length (Red)	Length (Green)
	mm.	mm.
l_{bn}	230	223
l^{1n}	478	456
l^{2n}	157	171
l^{3n}	213	209
l^4	See Table VI	
l_{5n}	-246	-247

(b) Correction for Thermal Expansion of the Lengths

Space	Thermometer System	Composition	Remarks
l_b	Red	200 mm. silica + 30 mm. pyrex	$l_b = l_{bn}$ (0° through 250° C.)
l_b	Green	200 mm. silica + 23 mm. pyrex	$l_b = l_{bn} + 0.1$ (300° through 444.6° C.)
l_1	Both	Pyrex glass	A function of $1/T_1$
l^2	Both	Stainless steel	Constant for all runs
l_3	Both	200 mm. stainless steel, the rest steel	Constant for all runs
l^4	Both		See Table VI
l_5	Both		Constant for all runs

6. Nitrogen

M = 28.016, molecular weight of nitrogen.

R = 62360 ml.-mm./C.° -- mole, the universal gas constant.

B = 73.9548 - 26.5697 x 10^{-3} T - 22.1555 x $10^3/T$ + 80.8487 x $10^6/T^3$ ml./mole, second coefficient of nitrogen in the equation $pV = RT + Bp$, where $T = t$ °C. (Int.) + 273.16.

α_v = $\left[0.003661 + 1.3 \times 10^{-8}\, p_0(\text{mm.})\right]$ °K.$^{-1}$, approximate value of the mean coefficient of thermal pressure increase at constant volume from 0° to 450° C. for nitrogen as a function of the ice-point pressure.

TABLE II (Concluded)

7. Absolute Temperature Scale for Computing the Corrections

$T\ ^\circ K. = t\ ^\circ C.\ (Int.) + \Delta$

$t\ ^\circ C.$ (Int.)	Δ	$t\ ^\circ C.$ (Int.)	Δ
0	273.1600	200	273.1950
25	273.1560	250	273.2150
50	273.1550	300	273.2350
75	273.1560	356.58	273.2500
100	273.1600	400	273.2500
150	273.1750	444.6	273.2450

$t\ ^\circ C.$ (Int.)	Δ
22.6	273.156
34.2	273.155
65.8	

[1]U. S. National Bureau of Standards, Test No. Twl 54661, Aug. 22, 1928.
[2]Sears, Proc. Phys. Soc. London *26*, 95 (1914).
[3]E. B. Blaisdell, J. Math. and Phys., *19*, 186, 217, 228 (1940).
[4]Reference 32.

TABLE III

Constants of the Platinum Resistance Thermometers

Equations:

$$t = \frac{R_t - R_0}{\alpha R_0} + \delta \left(\frac{t}{100}\right)\left(\frac{t}{100} - 1\right)$$

$$\alpha = \frac{R_W - R_0}{R_0\left[t_w - \delta\left(\frac{t_W}{100}\right)\left(\frac{t_W}{100} - 1\right)\right]}$$

$$\delta = \left(t_s - \frac{R_S - R_0}{\alpha R_0}\right) \Big/ \left(\frac{t_S}{100}\right)\left(\frac{t_S}{100} - 1\right)$$

$$t_0 = 0 - 1.29 \times 10^{-5}\ (B-760) - 0.072 \times 10^{-5}\ h.$$

$$t_W = 100 + 36.8578 \times 10^{-3}(p-760) - 20.159 \times 10^{-6}(p-760)^2 + 16.21 \times 10^{-9}(p-760)^3$$

TABLE III (Continued)

$t_S = 444.6 + 90.8028 \times 10^{-3}(p-760) - 47.573 \times 10^{-6}(p-760)^2 + 43.61 \times 10^{-9}(p-760)^3$

Quantities:

t, t_0, t_w, t_S = temperatures, °C. (Int.), of the temperature t, the ice point, the steam point, and the sulphur boiling point, respectively.

R_t, R_0, R_w, R_S = resistances of the platinum coil at t, the ice point, the steam point, and the sulphur boiling point, respectively.

α, δ = constants in the Callendar formula.

p = pressure (standard mm. of mercury) at mid-point of platinum coil. For the reduction of the observed height of mercury in the manometer to the pressure p see References 27, 28, and 29.

B = barometric pressure (standard mm. of mercury).

h = distance (mm.) from mid-point of platinum coil to surface of water in the ice-point cell.

Thermometer No.	α	δ	Normal Mercury Boiling Point, °C. (Int.)

The first figure in parenthesis after each value is the standard deviation of the arithmetic mean in units in the last significant figure and the second is the number of determinations.

Calibrations of Dec. 12, 1935: Runs No. 111-135			
107	0.003921 423 (9)(3)	1.492 58 (5)(3)	356.5775 (11)(2)
307	.003919 871 (2)(3)	1.493 54 (15)(3)	356.5732 (4)(2)
308	.003921 771 (14)(3)	1.492 13 (9)(3)	356.5788 (6)(2)
310	.003918 537 (11)(3)	1.495 33 (3)(3)	356.5741 (8)(2)
Calibrations of Apr. 8, 1936: Runs No. 136-199			
107	0.003921 446 (17)(5)	1.492 37 (6)(2)	
307	.003919 945 (7)(3)	1.493 80 (2)(2)	
308	.003921 838 (0)(3)	1.492 28 (3)(2)	
310	.003918 636 (10)(3)	1.495 91 (15)(2)	
Calibrations of June 24, 1936: Runs 200-263			
107	0.003921 440 (3)(4)	1.492 64 (0)(2)	
306	.003917 303 (9)(4)	1.494 96 (2)(2)	
307	.003919 845 (13)(5)	1.493 37 (4)(2)	
308	.003921 771 (20)(6)	1.492 15 (21)(2)	
310	.003918 544 (15)(5)	1.495 37 (5)(2)	

TABLE III (Continued)

Thermometer No.	α	δ	Normal Mercury Boiling Point, °C. (Int.)

The first figure in parenthesis after each value is the standard deviation of the arithmetic mean in units in the last significant figure and the second is the number of determinations.

Calibrations of Sept. 21, 1936: Runs 264-286

107	0.003921 342 (7)(4)	1.493 15 (7)(3)	356.5786 (8)(2)
307	.003919 875 (10)(4)	1.493 91 (5)(3)	356.5791 (11)(2)
308	.003921 778 (14)(4)	1.492 25 (4)(3)	356.5808 (0)(2)
310	.003918 518 (8)(4)	1.495 37 (3)(3)	356.5786 (4)(2)

Calibrations of Oct. 22, 1936: Runs 287-310

107	0.003921 163 (22)(3)	1.492 32 (3)(2)	356.5853 (5)(2)
306	.003917 238 (16)(3)	1.494 86 (16)(2)	356.5774 (21)(4)
307	.003919 840 (11)(2)	1.493 54 (6)(2)	356.5834 (1)(2)
308	.003921 660 (26)(3)	1.491 42 (10)(2)	356.5794 (2)(3)
310	.003918 596 (4)(2)	1.495 59 (15)(2)	356.5832 (6)(2)

Calibrations of Dec. 11, 1936: Runs 311-320

306	0.003917 215 (9)(2)	1.495 54 (4)(2)	356.5782 (12)(2)
307	.003919 919 (14)(2)	1.494 06 (1)(2)	356.5775 (6)(2)
308	.003921 303 (19)(2)	1.493 23 (4)(2)	356.5808 (2)(2)
310	.003918 540 (21)(3)	1.495 15 (3)(2)	356.5791 (17)(2)

Calibrations of Feb. 12, 1937: Runs 321-394

310	0.003918 563 (12)(3)	1.495 08 (11)(3)	356.5707 (9)(3)
312	.003919 338 (20)(3)	1.495 62 (17)(3)	356.5703 (15)(4)
313	.003920 442 (24)(3)	1.494 50 (14)(3)	356.5748 (7)(4)
314	.003920 076 (14)(3)	1.494 46 (10)(3)	356.5698 (8)(3)

Runs in Which the Various Resistance Thermometers Were Used

Therm. No.	107	306	307	308	310	312	313	314
	Run Numbers							
	111-216 252-305	217-251 309-312 315-320	111-320	111-187 190-284 287-312	111-278 283-394	321-394	321-394	321-394

TABLE III (Concluded)

Dates of Calibrations of the Thermometer Bridge

July, 1935	May, 1937
Dec., 1935	June, 1940
	Sept., 1942

TABLE IV

Reduction of the Observed Mercury Heights to Standard Conditions

Equations:

$$p' = (H + \delta_1 - \delta_2 + \delta_3)F$$

$$\delta_3 = \epsilon_1 - \epsilon_2 + \alpha_s H(t_s - t_{sn}) + \frac{\rho_s g_l}{2E_s} H(H + 2D_2) + \beta_{Hg} H \frac{HF_m - 760}{1520}$$

$$= \left[\epsilon_1 - \epsilon_2 + 1.5 \times 10^{-6} H(t_s - 20) + 2.89 \times 10^{-9} H(H - 673)\right] \text{ mm.}$$

$$F = \frac{g_l}{g_n} \frac{1}{1 + \alpha_{Hg} t_{Hg}}$$

Quantities not defined by the above equations or in Table I or Table II, Parts 1, 2, 3 are given below.

p' = corrected pressure (standard mm. of mercury) at crown of mercury meniscus in the short arm of the main manometer.
δ_1 = capillary depression (mm.) of mercury in long arm of manometer.
δ_2 = capillary depression (mm.) in short arm.
δ_3 = scale corrections and correction (mm.) for the compressibility of mercury.
F_m = 0.995, the value of F at average room temperature of 27 ° C.
ϵ_1 = correction (mm.) for ruling error of scale at reading H + 100 mm.
ϵ_2 = correction (mm.) for ruling error of scale at reading D_2 = 100 mm.
h_1 = height (mm.) of mercury meniscus in long arm of manometer.
h_2 = height (mm.) of mercury meniscus in short arm of manometer.

TABLE IV (Continued)

Capillary Depression Correction: δ_1
(Interpolated from Table II-2(b) for tube diameters d_1 given in Table II-3)

H, mm. / h_1	300	400	500	600	700	800	900
mm.	δ_1, mm., (Red) for a = 2.66 cm. (Runs 111 to 379)						
0.7	0.0150	0.0144	0.0143	0.0139	0.0138	0.0138	0.0140
0.8	.0170	.0163	.0162	.0158	.0157	.0157	.0159
0.9	.0190	.0182	.0181	.0177	.0175	.0175	.0177
1.0	.0209	.0200	.0199	.0195	.0193	.0193	.0195
1.1	.0228	.0218	.0217	.0212	.0210	.0210	.0212
1.2	.0246	.0235	.0234	.0229	.0226	.0226	.0229
1.3	.0263	.0252	.0250	.0245	.0242	.0242	.0245
1.4	.0280	.0268	.0266	.0260	.0257	.0257	.0260
1.5	.0296	.0283	.0281	.0275	.0272	.0272	.0275
1.6	.0311	.0297	.0295	.0289	.0286	.0286	.0289
1.7	.0325	.0311	.0308	.0302	.0299	.0299	.0302
1.8	.0338	.0323	.0320	.0314	.0311	.0311	.0315
1.9	.0350	.0334	.0332	.0325	.0322	.0322	.0326
2.0	.0361	.0345	.0343	.0335	.0332	.0332	.0336
2.1	.0371	.0355	.0353	.0345	.0341	.0341	.0346
2.2	.0380	.0364	.0361	.0353	.0349	.0349	.0354
2.3	.0388	.0371	.0368	.0360	.0356	.0356	.0361
2.4	.0395	.0377	.0374	.0366	.0363	.0363	.0367
	δ_1, mm., (Green) for a = 2.66 cm. (Runs 111 to 379)						
0.7	0.0146	0.0145	0.0146	0.0147	0.0148	0.0143	0.0137
0.8	.0166	.0164	.0166	.0167	.0168	.0162	.0156
0.9	.0185	.0183	.0185	.0186	.0187	.0181	.0174
1.0	.0204	.0202	.0203	.0205	.0206	.0199	.0192
1.1	.0222	.0220	.0221	.0223	.0224	.0217	.0209
1.2	.0239	.0237	.0239	.0241	.0242	.0234	.0225
1.3	.0256	.0254	.0256	.0258	.0259	.0250	.0241
1.4	.0272	.0270	.0272	.0274	.0275	.0266	.0256
1.5	.0287	.0285	.0287	.0289	.0290	.0281	.0270
1.6	.0302	.0299	.0301	.0304	.0305	.0295	.0284
1.7	.0316	.0313	.0315	.0318	.0319	.0308	.0297
1.8	.0329	.0326	.0328	.0330	.0332	.0320	.0309
1.9	.0340	.0337	.0339	.0342	.0344	.0332	.0320
2.0	.0351	.0348	.0350	.0353	.0355	.0343	.0330
2.1	.0361	.0358	.0360	.0363	.0365	.0353	.0339
2.2	.0370	.0367	.0369	.0372	.0374	.0361	.0347
2.3	.0377	.0374	.0376	.0379	.0381	.0368	.0354
2.4	.0383	.0380	.0382	.0385	.0387	.0374	.0360

TABLE IV (Continued)

Capillary Depression Correction: δ_1
(Interpolated from Table II-2(b) for tube diameters d_1 given in Table II-3)

H, mm. / h_1 mm.	1000	1100	1200	1300	1400	1500	1600	1700
	δ_1, mm., (Red) for a = 2.66 cm. (Runs 111 to 379)							
0.7	0.0142	0.0141	0.0140	0.0142	0.0143	0.0143	0.0142	0.0144
0.8	.0161	.0160	.0159	.0161	.0163	.0163	.0161	.0163
0.9	.0180	.0178	.0177	.0180	.0182	.0182	.0180	.0182
1.0	.0198	.0196	.0195	.0198	.0200	.0200	.0198	.0200
1.1	.0216	.0213	.0212	.0216	.0218	.0218	.0216	.0218
1.2	.0233	.0230	.0229	.0233	.0235	.0235	.0233	.0235
1.3	.0249	.0246	.0245	.0249	.0251	.0251	.0249	.0252
1.4	.0265	.0262	.0260	.0265	.0267	.0267	.0265	.0268
1.5	.0280	.0277	.0275	.0280	.0282	.0282	.0280	.0283
1.6	.0294	.0291	.0289	.0294	.0296	.0296	.0294	.0297
1.7	.0307	.0304	.0302	.0307	.0310	.0310	.0308	.0311
1.8	.0319	.0317	.0315	.0319	.0322	.0322	.0320	.0323
1.9	.0330	.0328	.0326	.0330	.0333	.0333	.0331	.0334
2.0	.0341	.0338	.0336	.0341	.0344	.0344	.0342	.0345
2.1	.0351	.0348	.0346	.0351	.0354	.0354	.0352	.0355
2.2	.0359	.0356	.0354	.0359	.0363	.0363	.0360	.0364
2.3	.0366	.0363	.0361	.0366	.0370	.0370	.0367	.0371
2.4	.0372	.0369	.0367	.0372	.0376	.0376	.0373	.0377
	δ_1 mm., (Green) for a = 2.66 cm. (Runs 111 to 379)							
0.7	0.0142	0.0150	0.0146	0.0144	0.0142	0.0143	0.0145	0.0146
0.8	.0161	.0170	.0166	.0163	.0161	.0162	.0164	.0166
0.9	.0180	.0190	.0185	.0182	.0179	.0181	.0183	.0185
1.0	.0198	.0209	.0204	.0200	.0197	.0199	.0202	.0203
1.1	.0216	.0228	.0222	.0218	.0215	.0217	.0220	.0221
1.2	.0233	.0246	.0240	.0235	.0232	.0234	.0238	.0239
1.3	.0249	.0263	.0257	.0252	.0248	.0250	.0255	.0256
1.4	.0265	.0279	.0273	.0268	.0264	.0266	.0271	.0272
1.5	.0280	.0295	.0288	.0283	.0279	.0281	.0286	.0287
1.6	.0294	.0310	.0303	.0297	.0293	.0295	.0300	.0301
1.7	.0307	.0324	.0317	.0311	.0306	.0308	.0313	.0315
1.8	.0319	.0337	.0330	.0323	.0318	.0320	.0326	.0328
1.9	.0330	.0349	.0341	.0334	.0329	.0332	.0338	.0339
2.0	.0341	.0360	.0352	.0345	.0340	.0343	.0349	.0350
2.1	.0351	.0370	.0362	.0355	.0350	.0353	.0359	.0360
2.2	.0359	.0379	.0371	.0364	.0358	.0361	.0368	.0369
2.3	.0366	.0387	.0378	.0371	.0365	.0368	.0375	.0376
2.4	.0372	.0394	.0384	.0377	.0371	.0374	.0381	.0382

TABLE IV (Continued)

Capillary Depression Correction: δ_1 *(Continued)*

H, mm / h_1	300	400	500	600	700	800	900
mm.	δ_1, mm., (Red) for $a = 2.48$ cm. (Runs 380 to 394)						
0.7	0.0103	0.0098	0.0097	0.0095	0.0094	0.0094	0.0095
0.8	.0117	.0111	.0110	.0108	.0107	.0107	.0108
0.9	.0130	.0124	.0123	.0120	.0119	.0119	.0120
1.0	.0143	.0136	.0135	.0132	.0131	.0131	.0132
1.1	.0155	.0148	.0147	.0144	.0142	.0142	.0144
1.2	.0167	.0160	.0158	.0155	.0153	.0153	.0155
1.3	.0179	.0171	.0169	.0166	.0164	.0164	.0166
1.4	.0190	.0181	.0179	.0176	.0174	.0174	.0176
1.5	.0200	.0190	.0188	.0185	.0183	.0183	.0185
1.6	.0209	.0199	.0197	.0194	.0191	.0191	.0194
1.7	.0218	.0208	.0206	.0202	.0199	.0199	.0202
1.8	.0226	.0216	.0214	.0209	.0207	.0207	.0210
1.9	.0233	.0223	.0221	.0216	.0214	.0214	.0217
2.0	.0240	.0229	.0227	.0222	.0220	.0220	.0223
2.1	.0246	.0234	.0232	.0227	.0225	.0225	.0228
2.2	.0251	.0239	.0237	.0231	.0229	.0229	.0232
2.3	.0255	.0243	.0241	.0235	.0233	.0233	.0236
2.4	.0258	.0246	.0244	.0238	.0236	.0236	.0239
	δ_1, mm., (Green) for $a = 2.48$ cm. (Runs 380 to 394)						
0.7	0.0100	0.0099	0.0100	0.0100	0.0101	0.0097	0.0093
0.8	.0113	.0112	.0113	.0114	.0114	.0110	.0106
0.9	.0126	.0125	.0126	.0127	.0127	.0123	.0118
1.0	.0139	.0138	.0139	.0140	.0140	.0135	.0130
1.1	.0151	.0150	.0151	.0152	.0152	.0147	.0141
1.2	.0163	.0162	.0163	.0164	.0164	.0158	.0152
1.3	.0174	.0173	.0174	.0175	.0175	.0169	.0163
1.4	.0184	.0183	.0184	.0185	.0186	.0179	.0173
1.5	.0194	.0192	.0193	.0195	.0196	.0188	.0182
1.6	.0203	.0201	.0202	.0204	.0205	.0197	.0190
1.7	.0212	.0210	.0211	.0213	.0214	.0206	.0198
1.8	.0220	.0218	.0219	.0221	.0222	.0214	.0205
1.9	.0227	.0225	.0226	.0228	.0229	.0221	.0212
2.0	.0233	.0231	.0232	.0234	.0235	.0227	.0218
2.1	.0238	.0236	.0238	.0240	.0241	.0232	.0223
2.2	.0243	.0241	.0243	.0245	.0246	.0237	.0227
2.3	.0247	.0245	.0247	.0249	.0250	.0241	.0231
2.4	.0250	.0248	.0250	.0252	.0253	.0244	.0234

TABLE IV (Continued)

Capillary Depression Correction: δ_1 (Continued)

H, mm / h_1	1000	1100	1200	1300	1400	1500	1600	1700
mm.	δ_1, mm., (Red) for a = 2.48 cm. (Runs 380 to 394)							
0.7	0.0097	0.0096	0.0095	0.0097	0.0098	0.0098	0.0097	0.0098
0.8	.0110	.0109	.0108	.0110	.0111	.0111	.0110	.0111
0.9	.0122	.0121	.0120	.0122	.0124	.0124	.0123	.0124
1.0	.0134	.0133	.0132	.0134	.0136	.0136	.0135	.0136
1.1	.0146	.0145	.0144	.0146	.0148	.0148	.0147	.0148
1.2	.0157	.0156	.0155	.0157	.0159	.0159	.0158	.0160
1.3	.0168	.0167	.0166	.0168	.0170	.0170	.0169	.0171
1.4	.0178	.0177	.0176	.0178	.0180	.0180	.0179	.0181
1.5	.0187	.0186	.0185	.0187	.0189	.0189	.0188	.0190
1.6	.0196	.0195	.0194	.0196	.0198	.0198	.0197	.0199
1.7	.0205	.0203	.0202	.0205	.0207	.0207	.0206	.0208
1.8	.0213	.0211	.0210	.0213	.0215	.0215	.0214	.0216
1.9	.0220	.0218	.0217	.0220	.0222	.0222	.0221	.0223
2.0	.0226	.0224	.0223	.0226	.0228	.0228	.0227	.0229
2.1	.0231	.0229	.0228	.0231	.0233	.0233	.0232	.0234
2.2	.0235	.0233	.0232	.0235	.0238	.0238	.0237	.0239
2.3	.0239	.0237	.0236	.0239	.0242	.0242	.0240	.0243
2.4	.0242	.0240	.0239	.0242	.0245	.0245	.0243	.0246
	δ_1, mm., (Green) for a = 2.48 cm. (Runs 380 to 394)							
0.7	0.0097	0.0103	0.0100	0.0098	0.0097	0.0097	0.0099	0.0100
0.8	.0110	.0117	.0114	.0111	0.110	.0110	.0112	.0113
0.9	.0122	.0130	.0127	.0124	.0122	.0123	.0125	.0126
1.0	.0134	.0143	.0140	.0136	.0134	.0135	.0138	.0139
1.1	.0146	.0155	.0152	.0148	.0146	.0147	.0150	.0151
1.2	.0157	.0167	.0164	.0160	.0157	.0158	.0162	.0163
1.3	.0168	.0179	.0175	.0171	.0168	.0169	.0173	.0174
1.4	.0178	.0190	.0185	.0181	.0178	.0179	.0183	.0184
1.5	.0187	.0200	.0195	.0190	.0187	.0188	.0192	.0193
1.6	.0196	.0209	.0204	.0199	.0196	.0197	.0201	.0202
1.7	.0205	.0218	.0213	.0208	.0205	.0206	.0210	.0211
1.8	.0213	.0226	.0221	.0216	.0213	.0214	.0218	.0219
1.9	.0220	.0233	.0228	.0223	.0220	.0221	.0225	.0226
2.0	.0226	.0239	.0234	.0229	.0226	.0227	.0231	.0232
2.1	.0231	.0245	.0239	.0234	.0231	.0232	.0237	.0238
2.2	.0235	.0250	.0244	.0239	.0235	.0237	.0242	.0243
2.3	.0239	.0254	.0248	.0243	.0239	.0241	.0246	.0247
2.4	.0242	.0257	.0251	.0246	.0242	.0244	.0249	.0250

TABLE IV (Continued)

Capilliary Depression Correction: δ_2
(Interpolated from Table II-2(b) for tube diameters d_2 given in Table II-3)

h_2, mm.	1.0	1.1	1.2	1.3	1.4	1.5	1.6
	δ_2, mm., for $a = 2.66$ cm. (All Runs)						
Red	0.0221	0.0241	0.0260	0.0278	0.0296	0.0313	0.0329
Green	.0215	.0234	.0252	.0270	.0287	.0303	.0318

Scale Correction and Correction for the Compressibility of Mercury: δ_3

H, mm. / t s	300	400	500	600	700	800	900
°C. (Int.)			δ_3, mm. (All Runs)				
24	0.0047	0.0102	0.0117	0.0122	0.0175	0.0195	0.0218
25	.0051	.0108	.0124	.0131	.0185	.0207	.0231
26	.0056	.0114	.0132	.0140	.0196	.0219	.0245
27	.0060	.0120	.0139	.0149	.0206	.0231	.0258
28	.0065	.0126	.0147	.0158	.0217	.0243	.0272
29	.0069	.0132	.0154	.0167	.0227	.0255	.0285
30	.0074	.0138	.0162	.0176	.0238	.0267	.0299
31	.0078	.0144	.0169	.0185	.0248	.0279	.0312
32	.0083	.0150	.0177	.0194	.0259	.0291	.0326

TABLE IV (Continued)

Capillary Depression Correction: δ_2 *(Continued)*
(Interpolated from Table II-2(b) for tube diameters d_2 given in Table II-3)

h_2, mm.	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
	δ_2, mm., for a = 2.66 cm. (All Runs)							
Red	0.0343	0.0357	0.0370	0.0382	0.0393	0.0402	0.0410	0.0417
Green	.0333	.0346	.0358	.0369	.0380	.0389	.0397	.0404

Scale Correction and Correction for the Compressibility of Mercury: δ_3

H, mm. / t_s	1000	1100	1200	1300	1400	1500	1600	1700
°C. (Int.)	δ_3, mm. (All Runs)							
24	0.0261	0.0284	0.0332	0.0343	0.0404	0.0426	0.0445	0.0506
25	.0276	.0300	.0350	.0362	.0425	.0448	.0469	.0532
26	.0291	.0317	.0368	.0382	.0446	.0471	.0493	.0557
27	.0306	.0333	.0386	.0401	.0467	.0493	.0517	.0583
28	.0321	.0350	.0404	.0421	.0488	.0516	.0541	.0608
29	.0336	.0366	.0422	.0440	.0509	.0538	.0565	.0634
30	.0351	.0383	.0440	.0460	.0530	.0561	.0589	.0659
31	.0366	.0399	.0458	.0479	.0551	.0583	.0613	.0685
32	.0381	.0416	.0476	.0499	.0572	.0606	.0637	.0710

TABLE IV (Concluded)

Factor for the Reduction of Mercury Heights to 0° C. and Standard Gravity

t_{Hg} °C. (Int.)	F
25	.9952 0925
26	.9950 2903
27	.9948 4886
28	.9946 6873
29	.9944 8865
30	.9943 0861

TABLE V

Outline of the Computation of $1/T_1$

Equations:

$$\frac{1}{T_1} = \frac{\phi_{an} - \frac{r_{an}}{T_{da}}}{p'_a - r_{an}}$$

$$p'_a = (H_a + \delta_a)F_a$$

$$\phi_{an} = p'_{an}\left[\frac{1 - r_{an}}{T_{ban}} + \frac{r_{an}}{T_{dan}}\right]$$

Quantities:

Subscript a denotes the auxiliary thermometer system.

Subscript n denotes the value of a quantity at the standard temperature, 27° C. (Int.)

H_a = measured vertical distance (mm.) from the crown of the mercury meniscus in the short arm of the auxiliary manometer to the crown in the long arm.

δ_a = mean value (mm.) of the capillary depression of mercury in the long arm of the auxiliary manometer minus that in the short arm, assumed constant for all runs.

F_a = factor for reducing mercury heights from a temperature t_{Hga} to 0° C. and standard gravity, see Table IV.

p'_a = pressure (standard mm. of mercury) at the crown of the mercury meniscus in the short arm of the auxiliary manometer.

r_{an} = ratio of the volume of the dead space of the auxiliary thermometer to the total volume at standard conditions, 27° C. (Int.).

T_{ba} = temperature (°K.) of the auxiliary thermometer bulb.

T_{da} = temperature (°K.) of the auxiliary thermometer dead space.

ϕ_{an} = calibration function of the auxiliary thermometer. In the calibration, the temperature T_{ban} of the thermometer bulb is maintained at 27° C. in a thermostat, the mean temperature T_{dan} of the dead space is approximately 27° C., but measured exactly, and p'_{an} is the corrected pressure.

$1/T_1$ = reciprocal temperature (°K.$^{-1}$) averaged with respect to area for the portion of the main thermometer system in the region of large thermal gradient.

Details of computation of the numerical values of $1/T_1$ are not given, but the results are listed in Table XI.

TABLE VI

The Gravitational Correction: δ_4

Equations:

$$\delta_4 = 1.1795 \times 10^{-6} M \frac{p' V_b}{V} \left(\frac{l_b}{T_b} + \sum_1^5{}_i \frac{l_i}{T_i} \right)$$

$$= 3.3045 \times 10^{-5} \frac{p' V_b}{V} \left(\frac{l_b}{T_b} + \sum_1^5{}_i \frac{l_i}{T_i} \right)$$

Quantities:

M = 28.016, molecular weight of nitrogen, Table II-6.

p' = corrected pressure (standard mm. of mercury) at crown of mercury meniscus in short arm of main manometer; listed in Table XI.

T = approximate Kelvin temperature of the bulb (T_b) or of the i-th dead space (T_i). The relation for conversion of t° C. (Int.) to T °K. is given in Table II-7. The nominal temperature t_r of the run was used for t_b; $1/T_1$ was determined directly by the auxiliary thermometer by the method outlined in Table V and is listed in Table XI; t_2 to t_5 are listed in Table XI.

l_b [l_i] = vertical height (mm.) of the bulb [i-th dead] space, see Table II-5. They are tabulated below.

h_3 = vertical distance (mm.) from the index mark in the short arm of the main manometer to the crown of the mercury meniscus, listed in Table XI.

V_b = volume of the main thermometer bulb under the conditions of the run, Table VII.

V = volume of the main thermometer system under standard conditions, Table II-4(a).

Runs 111 through 251 were made in the oil thermostat; Runs 252 through 394 in the nitrate thermostat.

t_r	l_b/T_b, mm./ °K.		l_4, mm.	
°C. (Int.)	Red	Green	Red	Green
0	0.84200	0.81637	-480.8	-480.8
25	.77141	.74793	-481.0	-481.0
50	.71173	.69007	-481.2	-481.2
75	.66062	.64052	-481.4	-481.4
100	.61636	.59760	-481.7	-481.7
150 (oil thermostat)	.54351	.52697	-482.1	-482.1
150 (nitrate thermostat)	.54351	.52697	-570.5	-532.5
200	.48606	.47126	-571.0	-533.0
250	.43959	.42621	-571.5	-533.5
300	.40141	.38919	-572.0	-534.0
356.58	.36534	.35422	-572.6	-534.6
400	.34177	.33138	-573.0	-535.0
444.6	.32054	.31079	-573.5	-535.5

TABLE VI (Concluded)

Red		Green		Red	Green
$1/T_1$	l_1	$1/T_1$	l_1	(All runs)	
°K.$^{-1}$	mm.	°K.$^{-1}$	mm.	l_2 (mm.) 157.0	171.0
0.001890	478.3	0.001851	456.3	l_3 (mm.) 213.0	209.0
.002156	478.2	.002120	456.2		
.002511	478.1	.002481	456.1	l_5 (mm.) $-246.0-h_3$	$-247.0-h_3$
.003004	478.0	.002990	456.0		
.003738		.003760			

TABLE VII

The Correction for Variation in Volume of the System on the Assumption that the Gas is Ideal: δ_5

Equations:

$$\delta_5 = \frac{p'}{V}\left[(V_b - V_{bn}) + \sum_2^5 i\ (V_i - V_{in})\right]$$

$$V = V_{bn} + \sum_1^5 i\ V_{in}$$

$$V_b - V_{bn} = V_{bn}\left[\alpha_b(t_r - t_{bn}) + \alpha'_b(t_b - t_r) - \frac{\beta_b}{760}(p'-760)\right] + \gamma_b(p' - p_e)$$

$$V_i - V_{in} = V_{in}\,\alpha_i(t_i - t_{in}) \qquad (i = 2,3,4)$$

$$V_5 - V_{5n} = V_{5n}\alpha_5\ (t_5 - t_{5n}) + a_5 h_3 + (V_C - 0.1)$$

$$p' - p_e = HF - (H_e + H_B)F_e$$

Quantities:

p' is listed in Table XI.

p'-p_e is listed in Table XI. It is computed from the (approximate) equations given above. H, H_e, H_B are measured quantities (see Table I), and $F\left[F_e\right]$ are the factors to reduce mercury heights to standard conditions given in Table IV for the temperatures $t_{H_\delta}\left[t_e\right]$ of Table I.

V, V_{bn}, V_{in} $(i = 1,2,3,4,5)$ are given in Table II-4(a).

V_b = volume (ml.) of the main thermometer bulb at the bulb temperature t_b, internal pressure p', and external pressure p_e. The temperature effect is computed in two steps: calculation is first made of the dilation to the nominal

TABLE VII (Continued)

temperature t_r of the run and then a small correction is applied for the deviation of t_b from t_r.

V_i = volume (ml.) of the i-th dead space (i = 1,2,3,4,5) under the conditions of the run.

α_b, α'_b, β_b, γ_b, α_i (i = 2,3,4,5) are given in Table II-4(b).

t_{bn}, t_{in}, (i = 2,3,4,5) are given in Table II-4

t_b, t_i (i = 2,3,4,5) are given in Table XI.

a_5 is given in Table II-3.

h_2 and h_3 are given in Table XI.

V_C is listed in terms of b in Table II-2(c).

Main Thermometer Bulb Volumes
(See Table II-4)

t_r °C. (Int.)	$10^3 \times V_{bn}\alpha_b t_r$ ml.	$10^3 \times V_{bn}\alpha'_b$ ml./°C.	$10^3 \times V_{bn}\beta_b/760$ ml./mm.	$10^3 \times \gamma_b$ ml./mm.
		Red thermometer bulb		
0	0.0	1.14	0.003503	0.0714
25	31.18	1.35	.003483	.0711
50	67.15	1.52	.003463	.0708
75	106.83	1.65	.003444	.0704
100	149.28	1.74	.003424	.0701
150	239.46	1.85	.003384	.0694
200	332.74	1.87	.003345	.0688
250	425.78	1.84	.003305	.0682
300	516.39	1.78	.003266	.0675
356.58	614.38	1.68	.003221	.0668
400	685.70	1.60	.003187	.0662
444.6	755.20	1.52	.003152	.0656
		Green thermometer bulb		
0	0.0	1.16	0.003606	0.0822
25	31.94	1.38	.003586	.0819
50	68.79	1.56	.003565	.0816
75	109.43	1.69	.003545	.0812
100	152.92	1.79	.003525	.0809
150	245.29	1.89	.003484	.0802
200	340.85	1.92	.003444	.0796
250	436.15	1.89	.003403	.0790
300	528.98	1.82	.003362	.0783
356.58	629.36	1.72	.003316	.0776
400	702.41	1.64	.003281	.0770
444.6	773.61	1.55	.003245	.0764

TABLE VII (Continued)

Main Thermometer Dead Space Volumes
(See Table II-4 and Table II-2(c).)

$\Delta V_i = V_{in}\alpha_i(t_i - 27)$

t_2 °C. (Int.)	$10^3 \times \Delta V_2$ ml.	t_3 °C. (Int.)	$10^3 \times \Delta V_3$ ml.	t_4 °C. (Int.)	$10^3 \times \Delta V_4$ ml.	t_4 °C. (Int.)	$10^3 \times \Delta V_4$ ml.	t_5 °C. (Int.)	$10^3 \times \Delta V_5$ ml.	h_8 mm.	$10^3 \times (V_C - 0.1)$ ml.
Red Thermometer System											
21.9	-0.01	23.5	-0.01	24.97	-0.07	28.76	+0.07	24.940	-0.05	1.20	21.8
25.3	± .00	25.8	± .00	25.24	- .06	29.03	.08	25.314	- .04	1.25	26.4
28.7	+ .01	28.2	+ .01	25.51	- .05	29.30	.09	25.689	- .03	1.30	30.9
32.1	.02	30.5	.02	25.78	- .04	29.57	.10	26.064	- .02	1.35	35.4
35.4	.03	32.8	.03	26.05	- .03	29.84	.11	26.438	- .01	1.40	39.8
38.8		35.2		26.32	- .02	30.11	.12	26.813	+ .00	1.45	44.1
				26.59	- .01	30.38	.13	27.187	+ .01	1.50	48.3
				26.86	± .00	30.65	.14	27.562	.02	1.55	52.5
				27.14	+ .01	30.92	.15	27.936	.03	1.60	56.6
				27.41	.02	31.19	.16	28.311	.04	1.65	60.6
				27.68	.03	31.46	.17	28.686	.05	1.70	64.5
				27.95	.04	31.73	.18	29.060	.06	1.75	68.3
				28.22	.05	32.01	.19	29.435	.07	1.80	72.0
				28.49	.06	32.28		29.809	.08	1.85	75.6
				28.76				30.184		1.90	79.1
										1.95	82.5
										2.00	85.8

a_8 (Red) = 0.3405 ml./mm.

TABLE VII (Continued)

$\Delta V_i = V_m \alpha_i (t_i - 27)$ (Continued)

t_2 °C. (Int.)	$10^3 \times \Delta V_2$ ml.	t_3 °C. (Int.)	$10^3 \times \Delta V_3$ ml.	t_4 °C. (Int.)	$10^3 \times \Delta V_4$ ml.	t_4 °C. (Int.)	$10^3 \times \Delta V_4$ ml.	t_5 °C. (Int.)	$10^3 \times \Delta V_5$ ml.	h_2 mm.	$10^3 \times (V_C - 0.1)$ ml.
					Green Thermometer System						
24.8		23.2		24.77		28.64		25.118		1.20	22.8
	±0.00		-0.01		-0.07		+0.06		-0.05		
29.2		25.7		25.07		28.93		25.460		1.25	27.4
	+ .01		± .00		- .06		.07		- .04		
33.5		28.3		25.36		29.23		25.802		1.30	32.0
	.02		+ .01		- .05		.08		- .03		
37.9		30.8		25.66		29.53		26.145		1.35	36.5
			.02		- .04		.09		- .02		
		33.3		25.96		29.83		26.487		1.40	40.9
					- .03		.10		- .01		
				26.26		30.12		26.829		1.45	45.2
					- .02		.11		+ .00		
				26.55		30.42		27.171		1.50	49.5
					- .01		.12		+ .01		
				26.85		30.72		27.513		1.55	53.7
					± .00		.13		.02		
				27.15		31.02		27.855		1.60	57.8
					+ .01		.14		.03		
				27.45		31.32		28.198		1.65	61.8
					.02		.15		.04		
				27.74		31.61		28.540		1.70	65.8
					.03		.16		.05		
				28.04		31.91		28.882		1.75	69.7
					.04		.17		.06		
				28.34		32.21		29.224		1.80	73.4
					.05				.07		
				28.64				29.566		1.85	77.0
									.08		
								29.908		1.90	80.5
									.09		
								30.251		1.95	83.9
										2.00	87.2

a_5 (Green) = 0.3447 ml./mm.

TABLE VIII

The Corrections for Variation of Temperature of the System on the Assumption that the Gas is Ideal: δ_6

Equation:

$$\delta_6 = \frac{p'}{V}\left[V_{in}\left(\frac{T_b}{T_1} - 1\right) + \sum_{2}^{5} {}_1 V_i \left(\frac{T_b}{T_i} - 1\right)\right]$$

Quantities:

V_{in} is given in Table II-4(a).

The computation of V_i ($i = 2,3,4,5$) is given in Table VII.

The computation of $1/T_1$ is outlined in Table V and the values of $1/T_1$ are given in Table XI.

Approximate values of T_b, T_i ($i = 2,3,4,5$) are computed from the values of t_b, t_i ($i = 2,3,4,5$) listed in Table XI by the method given in Table II-7.

TABLE IX

The Correction to $(\delta_5 + \delta_6)$ for the Imperfection of the Gas: δ_7

Equation:

$$\delta_7 = \frac{p'^2}{RV}\left[B_r\left(\frac{V_b - V}{T_r} + 2\sum_1^5 i\,\frac{V_i}{T_i}\right) - T_r\sum_1^5 \frac{B_i V_i}{T_i^2}\right],$$

where V_i signifies V_{in} for $i = 1$.

Quantities:

R is given in Table II-6.

$B_r\left[B_i\right]$ = second "virial coefficient" for nitrogen (ml./mole) at $t_r\left[t_i\right]$, see Table II-6.

Volumes and temperatures are explained in Table VII and VIII.

Values of the Second Coefficient B for Nitrogen
(See Table II-6)

t_r °C. (Int.)	B_r ml./mole	$1/T_1$ °K.$^{-1}$	B_1 ml./mole	t_i °C. (Int.)	B_i ml./mole
0	-10.445	0.0035	- 7.714	25	-5.224
25	- 5.224	.0034	- 6.011	26	-5.033
50	- 0.795	.0033	- 4.304	27	-4.843
75	+ 2.984	.0032	- 2.597	28	-4.654
100	6.223	.0031	- 0.890	29	-4.467
150	11.421	.0030	+ 0.815	30	-4.280
200	15.322	.0029	2.514	31	-4.095
250	18.270	.0028	4.205	32	-3.911
300	20.500	.0027	5.886	33	-3.728
356.58	22.364	.0026	7.552	34	-3.547
400	23.421	.0025	9.201	35	-3.366
444.6	24.235	.0024	10.829	36	-3.187
		.0023	12.429	37	-3.009
		.0022	13.996		
		.0021	15.525		
		.0020	17.006		

TABLE IX (Continued)

Values of $2V_i/T_i$

$1/T_1$ °K.$^{-1}$	$10^6 \times 2V_{in}/T_1$ ml./°K.	t_i °C. (Int.)	$10^6 \times 2V_2/T_2$ ml./°K.	$10^6 \times 2V_3/T_3$ ml./°K.	$10^6 \times 2V_4/T_4$ ml./°K.	$10^6 \times 2V_5/T_5$ ml./°K.
			Red Thermometer System			
0.0035	13.94	25	4.14	7.99	51.65	149.23
.0034	13.54	26	4.13	7.96	51.48	148.74
.0033	13.14	27	4.12	7.94	51.31	148.24
.0032	12.74	28	4.10	7.91	51.14	147.75
.0031	12.34	29	4.09	7.88	50.97	147.27
.0030	11.95	30	4.08	7.86	50.81	146.78
.0029	11.55	31	4.06	7.83	50.64	
.0028	11.15	32	4.05	7.81	50.48	
.0027	10.75	33	4.04	7.78		
.0026	10.35	34	4.03			
.0025	9.96	35	4.01			
.0024	9.56	36	4.00			
.0023	9.16	37	3.99			
.0022	8.76					
.0021	8.36					
.0020	7.96					
			Green Thermometer System			
0.0035	12.51	25	3.22	7.44	46.95	163.37
.0034	12.15	26	3.21	7.41	46.80	162.82
.0033	11.79	27	3.20	7.39	46.64	162.28
.0032	11.44	28	3.19	7.36	46.49	161.75
.0031	11.08	29	3.18	7.34	46.34	161.21
.0030	10.72	30	3.17	7.32	46.19	160.68
.0029	10.36	31	3.16	7.29	46.04	
.0028	10.01	32	3.15	7.27	45.89	
.0027	9.65	33	3.14	7.25		
.0026	9.29	34	3.13			
.0025	8.94	35	3.12			
.0024	8.58	36	3.11			
.0023	8.22	37	3.10			
.0022	7.86					
.0021	7.51					
.0020	7.15					

TABLE IX (Continued)

Values of $V_i B_i / T_i^2$

$1/T_1$	$10^4 \times \frac{V_1 B_1}{T_1^2}$	t_i	$10^4 \times \frac{V_2 B_2}{T_2^2}$	$10^4 \times \frac{V_3 B_3}{T_3^2}$	$10^4 \times \frac{V_4 B_4}{T_4^2}$	$10^4 \times \frac{V_5 B_5}{T_5^2}$
°K.$^{-1}$	ml./mole-° K.^{2}	°C. (Int.)	ml./mole-° K.^{2}			
			Red Thermometer System			
0.0035	-0.189	25	-0.036	-0.070	-0.452	-1.307
.0034	- .139	26	- .035	- .067	- .433	-1.251
.0033	- .094	27	- .033	- .064	- .414	-1.196
.0032	- .053	28	- .032	- .061	- .395	-1.142
.0031	- .017	29	- .030	- .058	- .377	-1.089
.0030	+ .015	30	- .029	- .055	- .359	-1.036
.0029	.042	31	- .027	- .053	- .341	
.0028	.065	32	- .026	- .050	- .323	
.0027	.085	33	- .025	- .047		
.0026	.101	34	- .023			
.0025	.114	35	- .022			
.0024	.124	36	- .021			
.0023	.131	37	- .019			
.0022	.135					
.0021	.136					
.0020	.137					
			Green Thermometer System			
0.0035	-0.169	25	-0.028	-0.065	-0.411	-1.431
.0034	- .124	26	- .027	- .062	- .394	-1.370
.0033	- .084	27	- .026	- .060	- .376	-1.309
.0032	- .048	28	- .025	- .057	- .359	-1.250
.0031	- .016	29	- .023	- .054	- .343	-1.192
.0030	+ .013	30	- .022	- .052	- .326	-1.134
.0029	.038	31	- .021	- .049	- .310	
.0028	.060	32	- .020	- .047	- .294	
.0027	.078	33	- .019	- .044		
.0026	.092	34	- .018			
.0025	.103	35	- .017			
.0024	.111	36	- .016			
.0023	.117	37	- .015			
.0022	.121					
.0021	.122					
.0020	.123					

TABLE X

The Correction to the Nominal Temperature of the Run: δ_8

Equations:

$$\delta_8 = \alpha_v p_0 (t_r - t_b)$$

$$\alpha_v = \left[0.003661 + 1.3 \times 10^{-8} p_0 \text{ (mm.)}\right] {}^\circ K.^{-1}$$

Quantities:

For α_v see Table II-7.

t_r = nominal temperature (°C. Int.) of the main thermometer bulb.

t_b = actual temperature (°C. Int.) of the main thermometer bulb.

p_0 = average ice-point pressure (standard mm. of mercury) for a series of runs, see Table XI.

Runs	$\alpha_v p_0$ mm./°K.	
	Red	Green
111-135	3.668	3.672
136-167	2.752	2.757
168-199	1.648	1.651
200-225	2.200	2.202
226-308	1.221	1.225
309-356	2.203	2.205
357-394	1.649	1.651

TABLE XI

Reduction of the Observations

Equations: $p' = (H + \delta_1 - \delta_2 + \delta_3)F$

$p = p' + \delta_4 + \delta_5 + \delta_6 + \delta_7 + \delta_8$

See Tables I and III to X.

Column	Quantity Listed
1	t_r = temperature (°C. Int.) of run. p_0 = approximate ice-point pressure (mm. Hg).
2	Run number. Date.
3-4	t_b = bulb temperature (°C. Int.) determined by platinum resistance thermometer identified in parenthesis. (Table III)
5	t_b (ave.) = mean of the values of Columns 3-4. Ave. dev. = average deviation (°C. Int.) of mean.
6	t_s = scale temperature (°C. Int.) t_{Hg} = temperature (°C. Int.) of mercury column in main manometer.
7	R = Red gas thermometer. G = Green gas thermometer.
8	H = vertical height (mm.) of mercury column in main manometer.
9	h_1 = height (mm.) of mercury meniscus in long arm of main manometer.
10	h_2 = height (mm.) of mercury meniscus in short arm of main manometer.
11	h_3 = vertical distance (mm.) from crown of mercury meniscus to index mark in short arm of main manometer.
12	δ_1 = capillary depression (mm.) of mercury in long arm of main manometer. (Table IV)
13	δ_2 = capillary depression (mm.) of mercury in short arm. (Table IV)
14	δ_3 = scale correction and correction for compressibility of mercury (mm.). (Table IV)

t_r / p_o	Run No. / Date	t_b(308) / t_b(307)	t_b(107) / t_b(310)	t_b(ave.) / Ave. dev.	t_s / t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
0	111	-0.0096	-0.0100	-0.0098	25.60	R	1003.2992	1.110	1.841	0.0543	0.0218	0.0362	0.0286
1000	2/27/36	-0.0098	-0.0098	0.0001	25.580	G	1004.6330	1.109	1.704	0.0465	0.0218	0.0334	0.0286
0	112	+0.0014	+0.0017	+0.0020	25.30	R	1003.3422	1.099	1.908	0.0587	0.0216	0.0371	0.0281
1000	2/28/36	+0.0019	+0.0030	0.0005	25.553	G	1004.6757	1.022	1.696	0.0580	0.0202	0.0332	0.0282
0	113	-0.0020	-0.0021	-0.0018	25.19	R	1003.3092	1.111	1.940	0.0975	0.0218	0.0375	0.0280
1000	2/28/36	-0.0017	-0.0014	0.0002	25.544	G	1004.6623	1.091	1.658	0.0492	0.0215	0.0327	0.0280
100	114	100.0013	100.0016	100.0006	25.52	R	1370.1758	1.142	1.927	0.0743	0.0225	0.0373	0.0417
1000	3/2/36	99.9981	100.0014	0.0012	25.516	G	1372.0290	1.087	1.686	0.0488	0.0214	0.0331	0.0418

TABLE XI (Continued)

Reduction of the Observations

Two rows constitute a run. Columns 1-6 apply to both gas thermometers which are identified in Column 7 as *R* (Red) and *G* (Green). Columns 8-27 give the results for the gas thermometer indicated in Column 7.

Column	Quantity Listed
15	p' = pressure (standard mm. *Hg*) at crown of meniscus in short arm of main manometer.
16	$p'-p_e$ = excess of internal over external pressure (mm. *Hg*) for the thermometer bulb.
17	$1/T_1$ = reciprocal Kelvin temperature (°Abs.) averaged with respect to area for Dead Space 1. (Table V)
18-21	t_2, t_3, t_4, t_5 = temperature (°C. Int.) of Dead Spaces 2,3,4,5, respectively.
22	δ_4 = gravitational correction (stand. mm. Hg). (Table VI)
23	δ_5 = correction (stand. mm. *Hg*) for volume variation of the system on assumption gas is ideal. (Table VII)
24	δ_6 = correction (stand. mm. *Hg*) for temperature variation of the system on assumption gas is ideal. (Table VIII)
25	δ_7 = correction (stand. mm. *Hg*) to $\delta_6 + \delta_7$ for imperfection of gas. (Table IX)
26	δ_8 = correction (stand. mm. *Hg*) to nominal temperature of run. (Table X)
27	p = pressure (stand. mm. *Hg*) of gas thermometer at nominal temperature t_r given in Column 1.

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
998.4019	-5	0.003452	26.0	26.0	25.60	25.594	0.0426	0.0929	-0.2942	-0.0009	0.0359	998.278
999.7320	-4	0.003456	25.0	25.8	25.60	25.594	0.0405	0.0793	-0.2936	-0.0009	0.0360	999.593
998.4480	-6	0.003464	26.0	26.0	25.27	25.554	0.0427	0.0991	-0.2929	-0.0009	-0.0073	998.289
999.7775	-4	0.003473	25.0	25.0	25.39	25.554	0.0407	0.0826	-0.2919	-0.0009	-0.0073	999.601
998.4165	-6	0.003466	26.0	25.3	25.21	25.545	0.0428	0.1146	-0.2936	-0.0010	0.0066	998.286
999.7674	-3	0.003473	25.0	25.0	25.28	25.545	0.0407	0.0767	-0.2912	-0.0009	0.0066	999.599
1363.5110	-3	0.002984	31.0	27.0	25.44	25.526	0.0374	0.03486	1.1556	0.0048	-0.0022	1365.055
1365.3583	+1	0.002999	30.0	27.2	25.51	25.526	0.0353	0.3112	1.1540	0.0048	-0.0022	1366.861

TABLE XI (Continued)

t_r p_o	Run No. Date	t_b(308) t_b(307)	t_b(107) t_b(310)	t_b(ave.) Ave. dev.	t_s t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
100	115	100.0019	100.0016	100.0010	25.42	R	1370.1905	1.103	1.966	0.0613	0.0218	0.0378	0.0415
1000	3/3/36	100.0001	100.0004	0.0008	25.534	G	1372.0302	0.983	1.767	0.0662	0.0195	0.0342	0.0416
0	116	-0.0029	-0.0032	-0.0032	25.42	R	1003.3115	1.123	1.831	0.0808	0.0220	0.0361	0.0283
1000	3/6/36	-0.0028	-0.0038	0.0003	25.524	G	1004.6312	1.117	1.775	0.0703	0.0219	0.0343	0.0283
0	117	-0.0051	-0.0046	-0.0048	25.50	R	1003.3067	1.102	1.875	0.0510	0.0216	0.0367	0.0284
1000	3/6/36	-0.0046	-0.0051	0.0002	25.534	G	1004.6128	0.992	1.746	0.1127	0.0197	0.0339	0.0285
100	118	100.0011	100.0014	100.0000	25.37	R	1370.1815	1.147	1.980	0.0715	0.0225	0.0380	0.0414
1000	3/9/36	99.9988	99.9989	0.0012	25.502	G	1372.0177	1.075	1.731	0.0427	0.0211	0.0337	0.0415
100	119	100.0005	100.0008	99.9994	25.59	R	1370.1828	1.137	1.791	0.0485	0.0224	0.0356	0.0418
1000	3/9/36	99.9982	99.9980	0.0013	24.541	G	1372.0005	1.011	1.735	0.0610	0.0200	0.0338	0.0420
0	120	+0.0048	+0.0057	+0.0052	25.37	R	1003.3474	1.149	1.794	0.0532	0.0224	0.0356	0.0282
1000	3/11/36	+0.0049	+0.0055	0.0004	25.568	G	1004.6768	1.178	1.622	0.0572	0.0230	0.0321	0.0283
0	121	+0.0003	+0.0004	+0.0003	25.30	R	1003.3272	1.163	1.807	0.1027	0.0227	0.0358	0.0281
1000	3/11/36	+0.0004	+0.0000	0.0001	25.558	G	1004.6615	1.090	1.612	0.0645	0.0215	0.0320	0.0282
100	122	100.0023	100.0026	100.0036	25.84	R	1370.1708	1.130	1.784	0.1312	0.0223	0.0355	0.0424
1000	3/14/36	100.0038	100.0057	0.0012	25.582	G	1371.9973	0.947	1.627	0.1407	0.0188	0.0322	0.0425
75	123	74.9957	74.9955	74.9965	25.87	R	1278.5542	1.013	1.830	0.0510	0.0200	0.0361	0.0376
1000	3/16/36	74.9982	74.9967	0.0009	25.580	G	1280.2387	0.899	1.753	0.0868	0.0182	0.0340	0.0377
50	124	50.0025	50.0019	50.0025	26.07	R	1186.8885	1.085	1.794	0.0827	0.0210	0.0356	0.0363
1000	3/16/36	50.0028	50.0027	0.0003	25.667	G	1188.4935	1.046	1.746	0.0432	0.0213	0.0339	0.0363
25	125	25.0032	25.0040	25.0034	26.05	R	1095.1578	1.144	1.840	0.0520	0.0221	0.0362	0.0317
1000	3/17/36	25.0030	25.0034	0.0003	25.633	G	1096.5963	1.022	1.683	0.0792	0.0213	0.0330	0.0317
25	126	25.0031	25.0036	25.0030	25.94	R	1095.1400	1.207	1.825	0.0720	0.0231	0.0360	0.0315
1000	3/17/36	25.0025	25.0030	0.0003	25.617	G	1096.5908	1.100	1.752	0.0947	0.0228	0.0340	0.0315
75	127	75.0018	75.0030	75.0035	25.75	R	1278.5358	1.142	1.816	0.1022	0.0222	0.0359	0.0374
1000	3/18/36	75.0053	75.0038	0.0011	25.497	G	1280.2240	1.086	1.491	0.1425	0.0216	0.0302	0.0374
50	128	50.0031	50.0026	50.0036	25.77	R	1186.8753	1.114	1.792	0.0488	0.0215	0.0356	0.0357
1000	3/18/36	50.0049	50.0036	0.0007	25.524	G	1188.4562	1.110	1.583	0.0612	0.0224	0.0315	0.0358
100	129	100.0010	100.0008	100.0003	25.49	R	1370.1558	1.159	1.840	0.1323	0.0227	0.0362	0.0416
1000	3/19/36	99.9982	100.0012	0.0010	25.506	G	1372.0040	1.106	1.446	0.1015	0.0217	0.0294	0.0418
0	130	-0.0030	-0.0033	-0.0026	25.29	R	1003.3127	1.138	1.927	0.0503	0.0222	0.0373	0.0281
1000	3/23/36	-0.0023	-0.0017	0.0006	25.498	G	1004.6445	1.131	1.514	0.0568	0.0222	0.0305	0.0281
0	131	0.0000	-0.0006	+0.0001	25.22	R	1003.3170	1.184	1.823	0.0483	0.0230	0.0360	0.0280
1000	3/23/36	+0.0005	+0.0006	0.0004	25.482	G	1004.6458	1.186	1.770	0.0532	0.0231	0.0342	0.0280
100	132	100.0011	100.0035	100.0012	25.52	R	1370.1663	1.077	1.904	0.0965	0.0213	0.0370	0.0417
1000	3/24/36	100.0000	100.0004	0.0011	25.481	G	1371.9883	1.016	1.760	0.0810	0.0201	0.0341	0.0418
100	133	100.0012	100.0033	100.0028	25.37	R	1370.1573	1.160	1.832	0.1022	0.0228	0.0361	0.0414
1000	3/24/36	100.0035	100.0034	0.0008	25.483	G	1371.9902	1.145	1.667	0.0825	0.0223	0.0328	0.0415

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
1363.5198	-2	0.002997	30.0	27.0	25.35	25.547	0.0377	0.3462	1.1568	0.0048	-0.0037	1365.062
1365.3519	-1	0.003003	30.0	27.0	25.55	25.547	0.0354	0.3274	1.1581	0.0048	-0.0037	1366.874
998.4243	-6	0.003467	26.0	26.0	25.38	25.528	0.0428	0.1012	-0.2930	-0.0009	0.0117	998.286
999.7392	-1	0.003472	25.0	25.0	25.42	25.528	0.0407	0.0929	-0.2927	-0.0009	0.0118	999.591
998.4168	-6	0.003467	26.0	26.0	25.46	25.543	0.0428	0.0941	-0.2927	-0.0009	0.0176	998.278
999.7175	0	0.003472	25.0	25.0	25.52	25.543	0.0407	0.1052	-0.2941	-0.0010	0.0176	999.586
1363.5191	-3	0.002989	31.0	27.0	25.29	25.489	0.0374	0.3522	1.1582	0.0048	0.0000	1365.072
1365.3493	0	0.003005	30.2	27.0	25.40	25.489	0.0354	0.3130	1.1560	0.0048	0.0000	1366.858
1363.5135	-2	0.002989	31.0	27.0	25.49	25.545	0.0375	0.3234	1.1493	0.0048	0.0022	1365.031
1365.3219	+1	0.003008	29.8	27.0	25.47	25.545	0.0355	0.3219	1.1575	0.0048	0.0022	1366.844
998.4528	+6	0.003467	26.0	26.0	25.42	25.566	0.0428	0.0899	-0.2922	-0.0009	-0.0191	998.273
999.7799	+6	0.003475	25.0	25.0	25.52	25.566	0.0408	0.0773	-0.2916	-0.0009	-0.0191	999.586
998.4345	+6	0.003467	26.0	26.0	25.29	25.562	0.0428	0.1079	-0.2935	-0.0009	-0.0011	998.290
999.7650	+10	0.003475	25.0	25.0	25.35	25.562	0.0408	0.0793	-0.2914	-0.0009	-0.0011	999.592
1363.4920	+1	0.002990	31.5	27.5	25.84	25.598	0.0375	0.3618	1.1562	0.0048	-0.0132	1365.039
1365.3095	0	0.003000	30.5	27.5	25.97	25.598	0.0354	0.3472	1.1599	0.0048	-0.0132	1366.844
1272.3167	+2	0.003098	30.0	27.0	25.84	25.594	0.0392	0.2527	0.7113	0.0028	0.0128	1273.336
1273.9934	-2	0.003096	29.0	27.0	25.89	25.594	0.0368	0.2590	0.7164	0.0028	0.0129	1275.021
1181.0813	-4	0.003201	28.7	27.0	26.00	25.681	0.0404	0.1969	0.3236	0.0012	-0.0092	1181.634
1182.6804	-4	0.003209	28.0	27.0	26.18	25.681	0.0383	0.1754	0.3242	0.0012	-0.0092	1183.210
1089.8038	-2	0.003322	27.0	27.0	26.03	25.644	0.0417	0.1347	-0.0118	-0.0001	-0.0125	1089.956
1091.2376	-1	0.003321	27.0	26.0	26.24	25.644	0.0394	0.1310	-0.0115	-0.0001	-0.0125	1091.384
1089.7902	-3	0.003323	27.0	26.0	25.91	25.636	0.0417	0.1410	-0.0109	-0.0001	-0.0110	1089.951
1091.2356	-1	0.003328	26.7	26.0	25.94	25.636	0.0395	0.1425	-0.0103	-0.0001	-0.0110	1091.396
1272.3197	-4	0.003096	30.0	26.0	25.65	25.477	0.0392	0.2733	0.7174	0.0028	-0.0128	1273.340
1274.0048	-3	0.003122	27.0	26.0	25.44	25.477	0.0375	0.2564	0.7221	0.0028	-0.0129	1275.011
1181.0987	0	0.003205	28.0	26.0	25.55	25.514	0.0405	0.1833	0.3267	0.0012	-0.0132	1181.637
1182.6769	-1	0.003226	26.0	25.0	25.26	25.514	0.0387	0.1678	0.3305	0.0012	-0.0132	1183.202
1363.4947	-2	0.002989	32.0	27.3	25.44	25.494	0.0373	0.3676	1.1607	0.0048	-0.0011	1365.064
1365.3399	-3	0.003007	29.7	26.5	25.35	25.494	0.0355	0.3084	1.1557	0.0048	-0.0011	1366.843
998.4290	-4	0.003466	26.0	26.0	25.25	25.468	0.0428	0.0976	-0.2920	-0.0009	0.0095	998.286
999.7610	-2	0.003475	25.0	25.0	25.16	25.468	0.0407	0.0678	-0.2895	-0.0009	0.0095	999.589
998.4381	-4	0.003467	26.0	26.0	25.19	25.460	0.0428	0.0896	-0.2910	-0.0009	-0.0004	998.278
999.7623	-2	0.003474	25.0	25.0	25.10	25.460	0.0407	0.0867	-0.2909	-0.0009	-0.0004	999.598
1363.5093	0	0.002993	31.5	27.0	25.52	25.435	0.0375	0.3572	1.1593	0.0048	-0.0044	1365.064
1365.3242	-1	0.003010	30.2	26.8	25.46	25.435	0.0355	0.3335	1.1622	0.0048	-0.0044	1366.856
1363.5019	-4	0.002998	31.5	27.0	25.29	25.460	0.0376	0.3525	1.1594	0.0048	-0.0103	1365.046
1365.3288	-2	0.003016	29.2	26.0	25.05	25.460	0.0357	0.3243	1.1625	0.0048	-0.0103	1366.846

TABLE XI (Continued)

t_r p_o	Run No. Date	t_b(308) t_b(307)	t_b(107) t_b(310)	t_b(ave.) Ave. dev.	t_s t_{H_2}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
0	134	+0.0008	+0.0009	+0.0009	25.24	R	1003.3137	1.258	1.903	0.0492	0.0242	0.0370	0.0280
1000	3/26/36	+0.0009	+0.0010	+0.0000	25.490	G	1004.6330	1.171	1.726	0.0948	0.0229	0.0336	0.0281
0	135	-0.0005	-0.0004	-0.0009	25.30	R	1003.3082	1.239	1.818	0.0507	0.0239	0.0359	0.0281
1000	3/26/36	-0.0013	-0.0014	0.0004	25.494	G	1004.6375	1.236	1.559	0.0625	0.0239	0.0312	0.0282
0	136	+0.0013	+0.0013	+0.0012	25.74	R	753.4042	1.072	1.785	0.0867	0.0205	0.0355	0.0205
750	4/9/36	+0.0011	+0.0013	0.0001	25.464	G	754.9243	1.243	1.461	0.1167	0.0245	0.0297	0.0206
0	137	+0.0002	+0.0006	+0.0005	25.77	R	753.4000	1.054	1.771	0.0853	0.0202	0.0353	0.0206
750	4/9/36	+0.0003	+0.0008	0.0002	25.462	G	754.9135	1.209	1.583	0.1460	0.0239	0.0315	0.0206
100	138	100.0022	100.0038	100.0023	25.85	R	1028.6630	1.224	1.767	0.0828	0.0236	0.0352	0.0296
750	4/14/36	100.0016	100.0015	0.0008	25.513	G	1030.7708	1.137	1.453	0.0823	0.0226	0.0295	0.0297
100	139	100.0000	100.0008	99.9998	25.77	R	1028.6635	1.206	1.760	0.0540	0.0233	0.0351	0.0295
750	4/14/36	99.9993	99.9992	0.0006	25.469	G	1030.7642	1.075	1.630	0.0670	0.0215	0.0322	0.0295
0	140	-0.0014	-0.0010	-0.0012	25.37	R	753.4380	1.108	1.813	0.0620	0.0211	0.0359	0.0201
750	4/16/36	-0.0013	-0.0012	0.0001	25.398	G	754.9577	1.255	1.420	0.0843	0.0247	0.0290	0.0201
0	141	-0.0009	-0.0002	-0.0006	25.44	R	753.4280	1.114	1.882	0.1042	0.0212	0.0368	0.0202
750	4/16/36	-0.0010	-0.0004	0.0003	25.419	G	754.9578	1.238	1.501	0.1082	0.0244	0.0303	0.0202
100	142	99.9985	99.9989	99.9989	25.60	R	1028.6765	1.310	1.695	0.0595	0.0250	0.0342	0.0292
750	4/17/36	99.9991	99.9990	0.0002	25.425	G	1030.7697	1.126	1.455	0.0777	0.0224	0.0296	0.0293
100	143	99.9992	99.9992	99.9992	25.62	R	1028.6560	1.284	1.818	0.1138	0.0246	0.0359	0.0293
750	4/17/36	99.9993	99.9991	0.0000	25.434	G	1030.7595	1.121	1.657	0.0992	0.0223	0.0327	0.0293
0	144	-0.0003	0.0000	-0.0001	25.34	R	753.4342	1.096	1.769	0.0592	0.0209	0.0353	0.0201
750	4/18/36	-0.0002	0.0000	0.0001	25.452	G	754.9760	1.264	1.670	0.0560	0.0248	0.0328	0.0201
0	145	-0.0011	-0.0004	-0.0008	26.10	R	753.4363	1.177	1.842	0.0533	0.0222	0.0362	0.0209
750	4/20/36	-0.0011	-0.0005	0.0003	25.505	G	754.9707	1.318	1.522	0.0740	0.0257	0.0306	0.0210
100	146	100.0002	100.0006	99.9999	26.15	R	1028.6925	1.258	1.772	0.0553	0.0241	0.0353	0.0301
750	4/21/36	100.0000	99.9988	0.0006	25.493	G	1030.7842	1.111	1.408	0.0775	0.0222	0.0288	0.0301
75	147	74.9977	74.9980	74.9978	26.15	R	959.9347	1.223	1.705	0.0843	0.0235	0.0344	0.0275
750	4/23/36	74.9980	74.9973	0.0002	25.481	G	961.8925	1.084	1.493	0.0770	0.0211	0.0302	0.0276
50	148	50.0022	50.0044	50.0030	25.57	R	891.1673	1.166	1.734	0.0755	0.0223	0.0348	0.0237
750	4/25/36	50.0035	50.0019	0.0010	25.447	G	892.9962	1.107	1.277	0.0505	0.0211	0.0266	0.0237
25	149	24.9996	25.0012	25.0006	26.00	R	822.3282	1.138	1.747	0.0742	0.0217	0.0350	0.0225
750	4/28/36	25.0002	25.0012	0.0006	25.482	G	823.9990	1.105	1.306	0.0843	0.0216	0.0271	0.0225
25	150	24.9996	25.0011	25.0004	26.07	R	822.3257	1.146	1.755	0.0755	0.0218	0.0351	0.0226
750	4/28/36	25.0003	25.0008	0.0005	25.467	G	823.9888	1.086	1.625	0.0885	0.0213	0.0322	0.0226
75	151	74.9972	74.9984	74.9978	26.45	R	959.9548	1.233	1.713	0.0942	0.0237	0.0345	0.0279
750	4/29/36	74.9986	74.9972	0.0006	25.521	G	961.8980	1.105	1.431	0.0978	0.0214	0.0292	0.0280
50	152	50.0036	50.0044	50.0041	26.17	R	891.1867	1.197	1.740	0.0830	0.0228	0.0349	0.0245
750	4/29/36	50.0045	50.0040	0.0003	25.567	G	892.9872	1.127	1.382	0.1050	0.0214	0.0284	0.0245

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
998.4336	-5	0.003470	26.0	26.0	25.19	25.456	0.0428	0.0955	-0.2913	-0.0009	-0.0033	998.276
999.7487	-3	0.003480	25.0	25.0	25.10	25.456	0.0408	0.0974	-0.2915	-0.0009	-0.0033	999.591
998.4283	-5	0.003470	26.0	25.0	25.19	25.477	0.0429	0.0900	-0.2907	-0.0009	0.0033	998.273
999.7559	-4	0.003483	25.0	25.0	25.03	25.477	0.0408	0.0732	-0.2893	-0.0009	0.0033	999.583
749.7373	+1	0.003464	26.3	26.0	25.61	25.447	0.0321	0.0760	-0.2200	-0.0005	-0.0033	749.622
751.2598	+2	0.003478	25.5	26.0	25.58	25.447	0.0306	0.0637	-0.2192	-0.0005	-0.0033	751.131
749.7334	+2	0.003464	26.0	26.0	25.59	25.458	0.0321	0.0750	-0.2199	-0.0005	-0.0014	749.619
751.2470	+3	0.003478	26.0	26.0	25.53	25.458	0.0306	0.0788	-0.2206	-0.0005	-0.0014	751.134
1023.6577	-3	0.002990	32.0	28.0	25.71	25.479	0.0280	0.2542	0.8647	0.0027	-0.0063	1024.801
1025.7600	0	0.003002	30.2	27.2	25.49	25.479	0.0265	0.2272	0.8658	0.0027	-0.0063	1026.876
1023.6661	-3	0.002991	32.0	27.3	25.67	25.447	0.0281	0.2435	0.8629	0.0027	0.0006	1024.804
1025.7577	0	0.002999	30.0	27.0	25.56	25.447	0.0265	0.2367	0.8682	0.0027	0.0006	1026.892
749.7797	-2	0.003466	26.0	26.0	25.18	25.368	0.0321	0.0711	-0.2183	-0.0005	0.0033	749.667
751.3025	-1	0.003486	25.0	25.0	25.15	25.368	0.0307	0.0527	-0.2166	-0.0005	0.0033	751.172
749.7662	-2	0.003466	26.0	26.0	25.22	25.403	0.0321	0.0856	-0.2198	-0.0005	0.0017	749.665
751.2982	-1	0.003486	25.0	25.0	25.20	25.403	0.0307	0.0639	-0.2178	-0.0005	0.0017	751.176
1023.6895	-4	0.002988	30.0	27.0	25.49	25.405	0.0282	0.2403	0.8636	0.0027	0.0030	1024.827
1025.7746	-3	0.002989	29.2	27.0	25.33	25.405	0.0264	0.2255	0.8660	0.0027	0.0030	1026.898
1023.6654	-4	0.002989	30.5	27.0	25.49	25.424	0.0281	0.2689	0.8704	0.0027	0.0022	1024.838
1025.7596	-4	0.002991	29.0	26.5	25.17	25.424	0.0264	0.2497	0.8728	0.0027	0.0022	1026.913
749.7690	0	0.003459	26.0	26.0	25.28	25.437	0.0320	0.0680	-0.2189	-0.0005	0.0003	749.650
751.3096	+3	0.003477	26.0	26.0	25.52	25.437	0.0306	0.0611	-0.2190	-0.0005	0.0003	751.182
749.7651	-1	0.003462	27.0	26.0	25.97	25.502	0.0321	0.0705	-0.2207	-0.0005	0.0022	749.649
751.3011	+3	0.003478	26.0	26.0	25.97	25.502	0.0306	0.0568	-0.2196	-0.0005	0.0022	751.171
1023.6917	-2	0.002991	30.3	27.0	26.02	25.485	0.0283	0.2450	0.8623	0.0027	0.0003	1024.830
1025.7778	0	0.002990	30.5	27.7	25.87	25.485	0.0264	0.2216	0.8621	0.0027	0.0003	1026.891
955.2692	-2	0.003095	31.0	27.3	26.04	25.468	0.0293	0.1925	0.5343	0.0016	0.0061	956.033
957.2193	-1	0.003120	28.2	27.0	25.85	25.468	0.0280	0.1728	0.5373	0.0016	0.0061	957.965
886.8373	-2	0.003206	28.0	27.0	25.46	25.430	0.0304	0.1427	0.2462	0.0007	-0.0083	887.249
888.6643	-1	0.003224	28.0	26.7	25.33	25.430	0.0288	0.1006	0.2457	0.0007	-0.0083	889.032
818.3264	-4	0.003327	27.0	26.0	25.80	25.472	0.0314	0.1025	-0.0067	0.0000	-0.0017	818.452
819.9968	-2	0.003335	27.0	26.0	25.66	25.472	0.0297	0.0749	-0.0058	0.0000	-0.0017	820.094
818.3262	-4	0.003327	27.0	26.0	25.92	25.464	0.0314	0.1033	-0.0069	0.0000	-0.0011	818.453
819.9836	-2	0.003336	27.0	26.0	25.77	25.464	0.0297	0.0980	-0.0059	0.0000	-0.0011	820.104
955.2828	-4	0.003092	31.0	29.0	26.30	25.526	0.0292	0.1962	0.5328	0.0016	0.0061	956.049
957.2196	-1	0.003119	30.0	28.3	26.22	25.526	0.0279	0.1746	0.5352	0.0016	0.0061	957.965
886.8385	-1	0.003207	28.0	27.0	26.05	25.587	0.0305	0.1454	0.2438	0.0007	-0.0113	887.248
888.6353	0	0.003221	28.0	27.0	26.03	25.587	0.0289	0.1254	0.2447	0.0007	-0.0113	889.024

TABLE XI (Continued)

t_r p_o	Run No. Date	t_b(308) t_b(307)	t_b(107) t_b(310)	t_b(ave.) Ave. dev.	t_s t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
100	153	100.0022	100.0021	100.0020	26.44	R	1028.7187	1.185	1.740	0.0922	0.0230	0.0349	0.0305
750	4/30/36	100.0020	100.0019	0.0001	25.510	G	1030.8102	1.074	1.357	0.1163	0.0215	0.0280	0.0306
0	154	+0.0020	+0.0024	+0.0025	25.74	R	753.4613	1.153	1.860	0.0527	0.0218	0.0365	0.0205
750	5/4/36	+0.0024	+0.0032	0.0004	25.510	G	754.9932	1.259	1.305	0.0637	0.0247	0.0271	0.0206
0	155	+0.0017	+0.0016	+0.0018	25.70	R	753.4528	1.185	1.771	0.1042	0.0224	0.0353	0.0205
750	5/4/36	+0.0017	+0.0024	0.0002	25.534	G	754.9897	1.283	1.247	0.1158	0.0251	0.0260	0.0205
100	156	100.0001	100.0016	100.0004	25.99	R	1028.7210	1.180	1.846	0.0728	0.0229	0.0363	0.0298
750	5/5/36	100.0005	99.9996	0.0006	25.593	G	1030.8285	1.099	1.230	0.0918	0.0220	0.0257	0.0299
100	157	100.0009	100.0020	100.0012	25.92	R	1028.7003	1.181	1.816	0.0967	0.0229	0.0359	0.0297
750	5/5/36	100.0009	100.0008	0.0004	25.553	G	1030.8015	1.118	1.528	0.1060	0.0223	0.0307	0.0298
0	158	-0.0008	-0.0008	-0.0007	26.07	R	753.4718	1.143	1.921	0.0600	0.0217	0.0373	0.0209
750	5/7/36	-0.0008	-0.0003	0.0002	25.622	G	754.9997	1.281	1.429	0.0652	0.0251	0.0292	0.0209
0	159	-0.0018	-0.0014	-0.0016	26.09	R	753.4677	1.081	1.854	0.0568	0.0207	0.0364	0.0209
750	5/7/36	-0.0016	-0.0014	0.0002	25.628	G	754.9957	1.182	1.676	0.0703	0.0234	0.0329	0.0210
150	160	149.9976	149.9948	149.9957	26.87	R	1166.1275	1.147	1.786	0.0945	0.0220	0.0355	0.0366
750	5/8/36	149.9946	149.9957	0.0010	25.693	G	1168.5112	1.023	1.533	0.1067	0.0210	0.0308	0.0367
150	161	149.9992	149.9971	149.9975	26.97	R	1166.1062	1.191	1.842	0.1518	0.0228	0.0362	0.0368
750	5/8/36	149.9975	149.9963	0.0008	25.710	G	1168.5318	1.099	1.465	0.1127	0.0224	0.0297	0.0369
0	162	-0.0006	+0.0001	-0.0003	25.97	R	753.4657	1.131	1.905	0.0980	0.0215	0.0371	0.0208
750	5/12/36	-0.0007	+0.0001	0.0004	25.631	G	755.0015	1.276	1.570	0.1088	0.0250	0.0314	0.0208
0	163	-0.0007	-0.0003	-0.0005	26.07	R	753.4762	1.028	1.778	0.0915	0.0198	0.0354	0.0209
750	5/12/36	-0.0008	-0.0002	0.0002	25.641	G	755.0157	1.170	1.467	0.0898	0.0232	0.0298	0.0209
100	164	100.0002	100.0011	100.0002	26.84	R	1028.7050	1.201	1.889	0.1507	0.0232	0.0369	0.0311
750	5/13/36	100.0000	99.9995	0.0004	25.680	G	1030.8207	1.098	1.416	0.1397	0.0219	0.0290	0.0312
100	165	100.0012	100.0022	100.0013	26.90	R	1028.7482	1.202	1.854	0.0852	0.0232	0.0364	0.0312
750	5/13/36	100.0012	100.0005	0.0005	25.706	G	1030.8520	1.059	1.247	0.1025	0.0212	0.0260	0.0313
0	166	-0.0011	-0.0007	-0.0007	26.17	R	753.4613	1.081	1.856	0.1438	0.0207	0.0364	0.0210
750	5/15/36	-0.0004	-0.0005	0.0002	25.613	G	754.9992	1.206	1.479	0.0867	0.0239	0.0300	0.0211
0	167	-0.0010	-0.0003	-0.0006	25.97	R	753.4568	1.117	1.923	0.1243	0.0213	0.0373	0.0208
750	5/15/36	-0.0004	-0.0005	0.0002	25.589	G	754.9900	1.218	1.651	0.1047	0.0241	0.326	0.0208
0	168	0.0000	+0.0006	+0.0002	27.14	R	451.8712	1.169	1.686	0.0892	0.0229	0.0341	0.0131
450	5/22/36	-0.0002	+0.0003	0.0003	27.556	G	452.7810	1.177	1.626	0.1118	0.0234	0.0322	0.0131
0	169	+0.0001	-0.0003	-0.0003	26.89	R	451.8637	1.208	1.714	0.0858	0.0236	0.0345	0.0129
450	5/22/36	-0.0007	-0.0002	0.0002	27.552	G	452.7795	1.241	1.652	0.0807	0.0245	0.0326	0.0129
100	170	100.0020	100.0011	100.0009	27.72	R	616.7887	1.155	1.610	0.0838	0.0221	0.0330	0.0165
450	5/23/36	99.9995	100.0010	0.0007	27.658	G	618.0420	1.091	1.232	0.0903	0.0222	0.0258	0.0166
100	171	100.0006	99.9988	99.9993	27.70	R	616.7892	1.207	1.677	0.0898	0.0230	0.0340	0.0165
450	5/23/36	99.9985	99.9993	0.0006	27.670	G	618.0463	1.173	1.563	0.0797	0.0236	0.0312	0.0166

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
1023.7143	-3	0.002991	33.0	31.0	26.35	25.509	0.0279	0.2555	0.8609	0.0027	-0.0055	1024.856
1025.8011	-2	0.003017	32.0	29.0	25.99	25.509	0.0266	0.2304	0.8647	0.0027	-0.0055	1026.920
749.7882	0	0.003491	26.0	26.0	25.61	25.481	0.0325	0.0713	-0.2187	-0.0005	-0.0069	749.666
751.3249	+3	0.003494	25.0	25.7	25.55	25.481	0.0308	0.0402	-0.2167	-0.0005	-0.0069	751.172
749.7782	0	0.003491	26.0	26.0	25.59	25.509	0.0324	0.0797	-0.2195	-0.0005	-0.0050	749.665
751.3196	+3	0.003494	25.0	26.0	25.62	25.509	0.0308	0.0496	-0.2178	-0.0005	-0.0050	751.177
1023.6990	-5	0.002983	32.0	29.0	25.83	25.581	0.0279	0.2565	0.8628	0.0027	-0.0011	1024.848
1025.8060	-1	0.002995	30.0	28.0	25.34	25.581	0.0264	0.2103	0.8602	0.0027	-0.0011	1026.904
1023.6862	-1	0.002983	31.5	29.0	25.81	25.535	0.0279	0.2630	0.8650	0.0027	-0.0033	1024.842
1025.7818	0	0.002997	30.0	28.0	25.39	25.535	0.0264	0.2418	0.8685	0.0027	-0.0033	1026.918
749.7829	-2	0.003489	26.0	26.0	25.92	25.625	0.0325	0.0763	-0.2205	-0.0005	+0.0019	749.673
751.3148	-1	0.003491	25.7	26.0	25.89	25.625	0.0308	0.0485	-0.2190	-0.0005	+0.0019	751.176
749.7779	0	0.003489	26.0	26.0	25.99	25.636	0.0325	0.0721	-0.2204	-0.0005	0.0044	749.666
751.3047	0	0.003493	26.0	26.0	26.02	25.636	0.0308	0.0649	-0.2207	-0.0005	0.0044	751.184
1160.4182	-101	0.002787	36.7	32.0	26.74	25.721	0.0248	0.3917	1.6280	0.0055	0.0118	1162.480
1162.7940	-97	0.002809	34.7	31.0	26.67	25.721	0.0236	0.3709	1.6347	0.0055	0.0119	1164.841
1160.3937	-99	0.002787	37.0	32.0	26.89	25.753	0.0248	0.4195	1.6383	0.0055	0.0069	1162.489
1162.8136	-95	0.002809	34.7	31.0	26.85	25.753	0.0236	0.3669	1.6319	0.0055	0.0069	1164.848
749.7755	-3	0.003496	26.0	26.0	25.90	25.632	0.0326	0.0852	-0.2210	-0.0005	0.0008	749.673
751.3129	+2	0.003489	26.0	26.0	26.01	25.632	0.0308	0.0685	-0.2211	-0.0005	0.0008	751.191
749.7847	-2	0.003496	26.0	26.0	25.96	25.644	0.0326	0.0767	-0.2205	-0.0005	0.0014	749.674
751.3256	+3	0.003489	26.0	26.0	26.04	25.644	0.0308	0.0574	-0.2202	-0.0005	0.0014	751.194
1023.6680	-3	0.002997	33.0	30.0	26.74	25.692	0.0281	0.2872	0.8666	0.0027	-0.0006	1024.852
1025.7800	+1	0.003002	31.0	29.0	26.70	25.692	0.0266	0.2440	0.8631	0.0027	-0.0006	1026.916
1023.7067	-2	0.002997	33.0	33.0	26.89	25.732	0.0282	0.2617	0.8594	0.0027	-0.0036	1024.855
1025.8086	+2	0.003000	31.0	29.0	26.89	25.732	0.0266	0.2160	0.8551	0.0027	-0.0036	1026.905
749.7737	-4	0.003496	26.0	26.7	26.06	25.598	0.0325	0.0944	-0.2221	-0.0005	0.0019	749.680
751.3137	+2	0.003487	26.0	26.0	26.20	25.598	0.0308	0.0573	-0.2203	-0.0005	0.0019	751.183
749.7720	-4	0.003495	26.0	26.0	25.87	25.583	0.0325	0.0929	-0.2214	-0.0005	0.0017	749.677
751.3051	+2	0.003487	25.5	26.0	25.75	25.583	0.0307	0.0723	-0.2207	-0.0005	0.0017	751.189
449.5002	-3	0.003491	27.0	28.0	27.14	27.532	0.0196	0.0430	-0.1397	-0.0002	-0.0003	449.423
450.4076	+2	0.003480	26.7	27.0	27.19	27.532	0.0185	0.0441	-0.1407	-0.0002	-0.0003	450.329
449.4931	+1	0.003492	27.0	27.0	26.87	27.528	0.0196	0.0436	-0.1393	-0.0002	0.0005	449.417
450.4069	+2	0.003482	26.0	27.0	26.95	27.528	0.0185	0.0402	-0.1400	-0.0002	0.0005	450.326
613.5440	-3	0.002984	34.0	31.0	27.68	27.636	0.0169	0.1460	0.4982	0.0009	-0.0015	614.204
614.7981	+1	0.002982	32.0	30.0	27.61	27.636	0.0159	0.1269	0.4974	0.0009	-0.0015	615.438
613.5431	-1	0.002986	34.0	31.0	27.70	27.655	0.0169	0.1506	0.4993	0.0009	0.0012	614.212
614.7970	+1	0.002981	32.0	30.0	27.61	27.655	0.0159	0.1422	0.5009	0.0009	0.0012	615.458

TABLE XI (Continued)

t_r p_o	Run No. Date	t_b(308) t_b(307)	t_b(107) t_b(310)	t_b(ave.) Ave. dev.	t_s t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
0	172	-0.0011	-0.0016	-0.0018	28.12	R	451.8738	1.147	1.505	0.1107	0.0225	0.0314	0.0138
450	5/26/36	-0.0019	-0.0028	0.0005	27.695	G	452.7992	1.231	1.438	0.0868	0.0243	0.0293	0.0138
0	173	+0.0018	+0.0011	+0.0012	27.87	R	451.8810	1.184	1.626	0.0947	0.0232	0.0333	0.0136
450	5/26/36	+0.0008	+0.0010	0.0003	27.709	G	452.7918	1.259	1.634	0.1090	0.0248	0.0323	0.0136
100	174	100.0012	99.9991	100.0000	27.95	R	616.7692	1.227	1.680	0.1518	0.0233	0.0340	0.0167
450	5/27/36	99.9986	100.0009	0.0011	27.666	G	618.0260	1.144	1.396	0.1308	0.0231	0.0286	0.0168
75	175	74.9972	74.9958	74.9964	28.02	R	575.5858	1.186	1.640	0.1140	0.0228	0.0335	0.0155
450	5/27/36	74.9960	74.9968	0.0006	27.703	G	576.7652	1.133	1.437	0.0878	0.0228	0.0293	0.0156
50	176	50.0019	50.0016	50.0012	27.22	R	534.3563	1.170	1.547	0.1073	0.0227	0.0321	0.0144
450	5/28/36	50.0016	49.9997	0.0008	27.590	G	535.4483	1.141	1.590	0.0972	0.0229	0.317	0.0144
25	177	25.0019	25.0022	25.0021	27.65	R	493.1388	1.074	1.730	0.0815	0.0212	0.0347	0.0143
450	5/29/36	25.0020	25.0022	0.0001	27.604	G	494.1215	1.117	1.492	0.1178	0.0224	0.0302	0.0143
25	178	24.9986	24.9989	24.9988	27.59	R	493.1282	1.131	1.665	0.0792	0.0222	0.0338	0.0142
450	5/29/36	24.9987	24.9990	0.0002	27.613	G	494.1202	1.139	1.638	0.0985	0.0228	0.0324	0.0143
75	179	74.9985	74.9978	74.9980	28.17	R	575.5915	1.128	1.739	0.0833	0.0218	0.0348	0.0157
450	6/1/36	74.9970	74.9985	0.0006	27.666	G	576.7662	1.138	1.491	0.0950	0.0229	0.0302	0.0157
50	180	49.9992	49.9983	49.9988	27.87	R	534.3570	1.088	1.774	0.0985	0.0213	0.0353	0.0150
450	6/1/36	49.9977	50.0001	0.0008	27.680	G	535.4522	1.175	1.635	0.1035	0.0235	0.0323	0.0150
100	181	100.0024	100.0015	100.0016	28.19	R	616.7967	1.160	1.681	0.1090	0.0222	0.0340	0.0170
450	6/2/36	100.0006	100.0021	0.0006	27.736	G	618.0558	1.113	1.527	0.0963	0.0226	0.0307	0.0170
0	182	+0.0001	-0.0004	-0.0004	28.62	R	451.8898	1.221	1.670	0.1072	0.0238	0.0339	0.0141
450	6/3/36	-0.0008	-0.0006	0.0003	27.840	G	452.8023	1.240	1.662	0.1080	0.0245	0.0327	0.0141
0	183	+0.0015	+0.0014	+0.0011	28.84	R	451.8950	1.242	1.902	0.1033	0.0241	0.0370	0.0142
450	6/3/36	+0.0012	+0.0004	0.0004	27.871	G	452.8028	1.266	1.678	0.1055	0.0249	0.0330	0.0143
150	184	150.0020	149.9906	149.9951	29.59	R	699.1132	1.267	1.710	0.0870	0.0237	0.0344	0.0233
450	6/4/36	149.9895	149.9984	0.0051	27.926	G	700.5278	1.181	1.676	0.0917	0.0239	0.0329	0.0234
150	185	150.0021	149.9937	149.9968	29.75	R	699.1200	1.311	1.795	0.0833	0.0244	0.0356	0.0235
450	6/4/36	149.9929	149.9986	0.0035	27.909	G	700.5235	1.195	1.704	0.1003	0.0241	0.0334	0.0235
0	186	-0.0020	-0.0032	-0.0027	28.72	R	451.8888	1.175	1.856	0.0692	0.0230	0.0364	0.0142
450	6/6/36	-0.0029	-0.0027	0.0004	27.811	G	452.7883	1.274	1.806	0.0860	0.0251	0.0347	0.0142
0	187	+0.0007	-0.0004	0.0000	28.04	R	451.8812	1.194	1.762	0.0987	0.0233	0.0352	0.0137
450	6/6/36	-0.0007	+0.0003	0.0005	27.726	G	452.7862	1.301	1.784	0.0772	0.0255	0.0344	0.0137
100	188		100.0048	100.0046	28.70	R	616.8147	1.145	1.869	0.0612	0.0219	0.0366	0.0174
450	6/8/36	100.0035	100.0055	0.0007	27.845	G	618.0508	1.130	1.700	0.0540	0.0229	0.0333	0.0175
100	189		100.0038	100.0033	28.74	R	616.8087	1.173	1.692	0.0790	0.0224	0.0342	0.0175
450	6/8/36	100.0020	100.0040	0.0008	27.836	G	618.0623	1.178	1.784	0.0793	0.0237	0.0344	0.0175
0	190	+0.0002	+0.0006	+0.0004	27.29	R	451.8677	1.189	1.844	0.0637	0.0233	0.0363	0.0132
450	6/10/36	+0.0002	+0.0004	0.0002	27.598	G	452.7700	1.270	1.747	0.1032	0.0250	0.0339	0.0132

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
449.4944	-2	0.003492	28.0	28.0	28.12	27.682	0.0196	0.0397	-0.1410	-0.0002	0.0030	449.416
450.4188	-3	0.003479	28.0	28.0	28.30	27.682	0.0185	0.0332	-0.1415	-0.0002	0.0030	450.332
449.4991	-1	0.003489	28.0	28.0	27.79	27.703	0.0196	0.0418	-0.1409	-0.0002	-0.0020	449.417
450.4076	-2	0.003479	27.2	28.0	27.65	27.703	0.0185	0.0438	-0.1419	-0.0002	-0.0020	450.326
613.5241	0	0.002992	32.5	31.0	27.88	27.657	0.0170	0.1639	0.5026	0.0009	0.0000	614.208
614.7796	0	0.002992	31.0	29.0	27.58	27.657	0.0160	0.1442	0.5022	0.0009	0.0000	615.443
572.5528	-2	0.003093	31.5	30.0	27.89	27.698	0.0177	0.1191	0.3051	0.0005	0.0059	573.001
573.7302	-1	0.003094	30.0	29.0	27.75	27.698	0.0167	0.1038	0.3053	0.0005	0.0059	574.162
531.5519	0	0.003212	28.8	28.0	27.08	27.569	0.0184	0.0842	0.1353	0.0002	-0.0020	531.788
532.6388	0	0.003208	28.0	28.0	27.11	27.569	0.0174	0.0837	0.1358	0.0002	-0.0020	532.874
490.5457	-2	0.003333	29.0	28.0	27.55	27.586	0.0190	0.0627	-0.0147	0.0000	-0.0035	490.609
491.5289	-3	0.003330	28.0	28.0	27.42	27.586	0.0179	0.0589	-0.0146	0.0000	-0.0035	491.588
490.5362	-2	0.003333	28.0	28.0	27.50	27.602	0.0190	0.0598	-0.0146	0.0000	0.0020	490.602
491.5250	-2	0.003330	28.0	28.0	27.37	27.602	0.0179	0.0615	-0.0146	0.0000	0.0020	491.592
572.5602	-2	0.003092	32.3	30.0	28.07	27.653	0.0177	0.1175	0.3046	0.0005	0.0033	573.004
573.7344	-2	0.003095	30.0	29.0	28.05	27.653	0.0168	0.1078	0.3057	0.0005	0.0033	574.168
531.5400	-2	0.003247	28.0	28.0	27.80	27.672	0.0188	0.0921	0.1356	0.0002	0.0020	531.789
532.6346	-3	0.003245	28.0	28.0	27.82	27.672	0.0177	0.0866	0.1357	0.0002	0.0020	532.877
613.5429	-2	0.002977	33.8	31.0	28.13	27.734	0.0168	0.1548	0.4986	0.0009	-0.0026	614.211
614.7990	-1	0.002984	33.0	31.0	28.55	27.734	0.0159	0.1438	0.4989	0.0009	-0.0026	615.456
449.4977	-3	0.003474	29.0	29.0	28.59	27.843	0.0195	0.0452	-0.1432	-0.0002	0.0007	449.420
450.4072	-2	0.003463	29.0	29.0	28.83	27.843	0.0184	0.0446	-0.1442	-0.0002	0.0007	450.326
449.4976	0	0.003480	29.0	29.0	28.84	27.879	0.0195	0.0525	-0.1441	-0.0002	-0.0018	449.424
450.4055	-1	0.003470	29.0	29.0	29.11	27.879	0.0185	0.0449	-0.1444	-0.0002	-0.0018	450.322
695.4079	-2	0.002875	31.0	30.0	29.56	27.963	0.0167	0.2350	0.9560	0.0019	0.0081	696.626
696.8168	-1	0.002873	31.0	30.0	29.69	27.963	0.0155	0.2332	0.9607	0.0019	0.0081	698.036
695.4165	-1	0.002880	31.0	30.0	29.68	27.946	0.0167	0.2386	0.9576	0.0019	0.0053	696.637
696.8144	+1	0.002867	31.0	30.0	29.74	27.946	0.0155	0.2368	0.9619	0.0019	0.0053	698.036
449.4958	-2	0.003487	28.0	28.3	28.61	27.812	0.0196	0.0457	-0.1426	-0.0002	0.0044	449.423
450.3944	+1	0.003475	28.0	28.3	28.49	27.812	0.0185	0.0463	-0.1435	-0.0002	0.0045	450.320
449.4962	-2	0.003487	28.0	28.0	27.99	27.726	0.0196	0.0471	-0.1418	-0.0002	0.0000	449.421
450.3994	+1	0.003480	27.0	28.0	27.86	27.726	0.0185	0.0442	-0.1422	-0.0002	0.0000	450.320
613.5462	-1	0.002994	33.2	31.0	28.63	27.857	0.0171	0.1534	0.4974	0.0009	-0.0076	614.207
614.7801	+1	0.003003	31.3	29.7	28.27	27.857	0.0162	0.1436	0.4999	0.0009	-0.0076	615.433
613.5442	0	0.002988	33.0	31.3	28.65	27.845	0.0171	0.1492	0.4961	0.0009	-0.0054	614.202
614.7923	+1	0.002996	32.0	30.0	28.65	27.845	0.0161	0.1527	0.5010	0.0009	-0.0054	615.458
449.4916	0	0.003496	27.0	27.7	27.21	27.577	0.0196	0.0445	-0.1399	-0.0002	-0.0007	449.415
450.3932	-1	0.003489	26.0	27.0	27.09	27.577	0.0186	0.0469	-0.1408	-0.0002	-0.0007	450.317

TABLE XI (Continued)

t_r p_o	Run No. Date	t_b(308) t_b(307)	t_b(107) t_b(310)	t_b(ave.) Ave. dev.	t_a t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
0	191	+0.0018	+0.0016	+0.0015	27.37	R	451.8645	1.213	1.750	0.1087	0.0237	0.0350	0.0132
450	6/10/36	+0.0013	+0.0013	0.0002	27.628	G	452.7772	1.287	1.728	0.1073	0.0253	0.0337	0.0133
150	192	150.0066	149.9995	150.0018	27.77	R	699.0770	1.253	1.817	0.0740	0.0235	0.0359	0.0214
450	6/11/36	149.9979	150.0030	0.0030	27.627	G	700.5048	1.187	1.784	0.0678	0.0240	0.0344	0.0215
150	193	150.0106	150.0050	150.0068	27.99	R	699.0868	1.300	1.749	0.1180	0.0242	0.0350	0.0216
450	6/11/36	150.0028	150.0086	0.0028	27.691	G	700.5072	1.181	1.809	0.0790	0.0239	0.0347	0.0217
0	194	+0.0004	-0.0003	-0.0001	27.84	R	451.8870	1.221	1.776	0.0790	0.0238	0.0354	0.0136
450	6/13/36	-0.0006	+0.0002	0.0004	27.688	G	452.7942	1.245	1.815	0.0832	0.0246	0.0348	0.0136
0	195	-0.0002	0.0000	-0.0002	27.62	R	451.8763	1.239	1.729	0.1002	0.0241	0.0347	0.0134
450	6/13/36	-0.0003	-0.0001	0.0001	27.675	G	452.7818	1.275	1.793	0.1132	0.0251	0.0345	0.0134
100	196	100.0024	100.0011	100.0017	27.52	R	616.7838	1.152	1.741	0.1025	0.0220	0.0349	0.0163
450	6/15/36	100.0005	100.0029	0.0009	27.635	G	618.0325	1.151	1.792	0.0837	0.0232	0.0345	0.0164
100	197	100.0034	100.0078	100.0052	27.47	R	616.7795	1.174	1.720	0.1067	0.0224	0.0346	0.0163
450	6/15/36	100.0038	100.0056	0.0016	27.634	G	618.0278	1.164	1.813	0.0805	0.0235	0.0348	0.0164
0	198	-0.0002	+0.0005	-0.0001	27.10	R	451.8780	1.248	1.851	0.0872	0.0242	0.0364	0.0131
450	6/17/36	-0.0003	-0.0005	0.0003	27.618	G	452.7800	1.272	1.808	0.0940	0.0250	0.0347	0.0131
0	199	-0.0012	+0.0022	-0.0002	27.50	R	451.8778	1.261	1.770	0.0688	0.0245	0.0353	0.0133
450	6/17/36	-0.0011	-0.0006	0.0012	27.615	G	452.7788	1.304	1.862	0.0728	0.0256	0.0353	0.0134
0	200	-0.0001	-0.0002	0.0000	29.30	R	603.0902	1.160	1.906	0.1210	0.0222	0.0371	0.0172
600	6/27/36	+0.0004	-0.0002	0.0002	29.697	G	603.7143	1.218	1.548	0.0903	0.0244	0.0310	0.0172
0	201	-0.0008	-0.0004	-0.0006	29.29	R	603.0957	1.153	1.849	0.1042	0.0221	0.0363	0.0171
600	6/27/36	-0.0003	-0.0007	0.0002	29.698	G	603.7042	1.225	1.455	0.1103	0.0245	0.0296	0.0172
100	202	100.0010	99.9992	100.0003	29.45	R	823.2892	1.171	1.848	0.0953	0.0222	0.0363	0.0268
600	6/29/36	100.0021	99.9988	0.0013	29.658	G	824.1442	1.218	1.689	0.0765	0.0235	0.0331	0.0268
100	203	100.0009	99.9986	100.0000	29.62	R	823.2855	1.146	1.911	0.0990	0.0218	0.0371	0.0270
600	6/29/36	100.0018	99.9986	0.0014	29.657	G	824.1362	1.176	1.741	0.0895	0.0228	0.0338	0.0270
0	204	-0.0012	-0.0018	-0.0012	29.17	R	603.0923	1.068	1.823	0.0765	0.0206	0.0360	0.0170
600	6/30/36	-0.0005	-0.0015	0.0004	29.656	G	603.6970	1.091	1.586	0.1128	0.0221	0.0316	0.0171
0	205	-0.0003	-0.0002	-0.0002	29.19	R	603.0935	1.192	1.841	0.0858	0.0228	0.0362	0.0171
600	6/30/36	-0.0002	-0.0003	0.0000	29.648	G	603.7060	1.228	1.855	0.0835	0.0246	0.0353	0.0171
150	206	150.0023	149.9961	149.9991	29.25	R	933.2023	1.264	1.883	0.0622	0.0241	0.0368	0.0306
600	7/1/36	150.0021	149.9960	0.0031	29.645	G	934.1498	1.167	1.760	0.0953	0.0222	0.0341	0.0306
150	207	150.0024	149.9970	149.9999	29.40	R	933.1872	1.186	1.808	0.1072	0.0228	0.0358	0.0308
600	7/1/36	150.0030	149.9973	0.0028	29.646	G	934.1627	1.121	1.840	0.0830	0.0215	0.0351	0.0308
0	208	-0.0003	-0.0003	-0.0002	29.12	R	603.0913	1.136	1.898	0.0780	0.0218	0.0370	0.0170
600	7/3/36	0.0000	-0.0001	0.0001	29.680	G	603.7028	1.178	1.804	0.0943	0.0237	0.0346	0.0170
0	209	+0.0012	+0.0016	+0.0014	29.17	R	603.1038	1.220	1.813	0.1003	0.0232	0.0359	0.0170
600	7/3/36	+0.0013	+0.0014	0.0001	29.685	G	603.7188	1.286	1.850	0.0788	0.0256	0.0352	0.0171

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
449.4877	-3	0.003491	27.0	28.0	27.24	27.615	0.0196	0.0482	-0.1405	-0.0002	-0.0025	449.412
450.3985	+1	0.003484	27.0	27.0	27.12	27.615	0.0185	0.0469	-0.1411	-0.0002	-0.0025	450.320
695.4060	0	0.002861	29.0	28.0	27.67	27.607	0.0164	0.2375	0.9649	0.0019	-0.0030	696.624
696.8283	-2	0.002853	29.0	28.0	27.54	27.607	0.0152	0.2331	0.9684	0.0019	-0.0030	698.044
695.4094	0	0.002860	29.0	28.0	27.84	27.682	0.0164	0.2445	0.9667	0.0019	-0.0112	696.628
696.8224	-2	0.002856	29.0	28.0	27.69	27.682	0.0153	0.2370	0.9692	0.0019	-0.0112	698.035
449.5053	-3	0.003489	27.0	28.0	27.71	27.676	0.0196	0.0445	-0.1410	-0.0002	0.0002	449.428
450.4091	-2	0.003482	27.0	27.0	27.55	27.676	0.0185	0.0460	-0.1417	-0.0002	0.0002	450.332
449.4965	-2	0.003490	27.0	28.0	27.49	27.666	0.0196	0.0462	-0.1408	-0.0002	0.0003	449.422
450.3984	-1	0.003482	27.0	27.2	27.31	27.666	0.0185	0.0499	-0.1418	-0.0002	0.0003	450.325
613.5395	-1	0.002999	33.0	30.0	27.45	27.615	0.0171	0.1563	0.5024	0.0009	-0.0028	614.213
614.7833	-2	0.003007	30.0	29.0	27.09	27.615	0.0162	0.1538	0.5064	0.0009	-0.0028	615.458
613.5360	-4	0.002999	32.5	30.0	27.41	27.617	0.0171	0.1561	0.5026	0.0009	-0.0086	614.204
614.7787	-1	0.003007	30.0	28.3	27.03	27.617	0.0162	0.1541	0.5068	0.0009	-0.0086	615.448
449.5009	-4	0.003497	27.0	27.0	27.05	27.602	0.0196	0.0482	-0.1400	-0.0002	0.0002	449.429
450.4006	-3	0.003490	26.5	27.0	27.32	27.602	0.0186	0.0474	-0.1412	-0.0002	0.0002	450.325
449.5025	-3	0.003493	27.0	28.0	27.45	27.607	0.0196	0.0427	-0.1402	-0.0002	0.0003	449.425
450.4000	0	0.003485	27.0	27.0	27.66	27.607	0.0186	0.0460	-0.1415	-0.0002	0.0003	450.323
599.6930	-1	0.003476	29.0	29.0	29.31	29.673	0.0262	0.0735	-0.2010	-0.0004	0.0000	599.591
600.3218	0	0.003477	28.5	29.0	28.96	29.673	0.0248	0.0503	-0.1992	-0.0004	0.0000	600.197
599.6989	-1	0.003476	29.0	29.0	29.29	29.678	0.0262	0.0676	-0.2004	-0.0004	0.0013	599.593
600.3131	0	0.003477	28.5	29.0	28.98	29.678	0.0248	0.0497	-0.1992	-0.0004	0.0013	600.189
818.6669	-5	0.002958	35.3	32.5	29.47	29.633	0.0224	0.2124	0.6463	0.0016	-0.0007	819.549
819.5215	-2	0.002966	34.0	32.0	29.31	29.633	0.0211	0.1962	0.6473	0.0016	-0.0007	820.387
818.6623	-5	0.003002	30.0	31.0	29.59	29.637	0.0233	0.2170	0.6514	0.0016	0.0000	819.556
819.5125	-2	0.002994	30.0	31.0	29.32	29.637	0.0217	0.2031	0.6513	0.0016	0.0000	820.390
599.6988	0	0.003476	29.0	29.3	29.19	29.631	0.0262	0.0608	-0.1995	-0.0004	0.0026	599.588
600.3061	+1	0.003476	29.0	29.0	29.15	29.631	0.0248	0.0567	-0.1999	-0.0004	0.0026	600.190
599.7030	+1	0.003476	29.0	30.0	29.16	29.629	0.0261	0.0636	-0.1998	-0.0004	0.0004	599.593
600.3147	+2	0.003476	29.0	29.0	29.03	29.629	0.0248	0.0630	-0.2004	-0.0004	0.0004	600.202
927.9685	+1	0.002841	30.8	30.0	29.26	29.604	0.0218	0.3170	1.2592	0.0033	0.0020	929.572
928.9115	0	0.002834	31.0	30.0	29.03	29.604	0.0202	0.3173	1.2653	0.0034	0.0020	930.520
927.9532	+2	0.002833	31.0	30.2	29.39	29.612	0.0217	0.3264	1.2616	0.0033	0.0002	929.566
928.9227	+1	0.002825	31.0	30.3	29.22	29.612	0.0201	0.3188	1.2645	0.0034	0.0002	930.530
599.6954	-2	0.003478	29.0	29.0	29.09	29.659	0.0262	0.0643	-0.1997	-0.0004	0.0004	599.586
600.3077	-3	0.003477	29.0	29.0	29.01	29.659	0.0248	0.0628	-0.2004	-0.0004	0.0004	600.195
599.7098	-2	0.003474	29.0	29.0	29.12	29.671	0.0261	0.0652	-0.2000	-0.0004	-0.0031	599.598
600.3245	-3	0.003476	29.0	29.0	29.08	29.671	0.0248	0.0616	-0.2005	-0.0004	-0.0031	600.207

TABLE XI (Continued)

t_r / p_o	Run No. / Date	t_b(308) / t_b(307)	t_b(107) / t_b(310)	t_b(ave.) / Ave. dev.	t_s / t_{H_2}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
100	210	100.0028	100.0013	100.0023	29.29	R	823.3158	1.110	1.918	0.1047	0.0212	0.0372	0.0266
600	7/6/36	100.0044	100.0006	0.0013	29.683	G	824.1652	1.106	1.773	0.1098	0.0216	0.0342	0.0266
100	211	100.0016	100.0001	100.0011	29.07	R	823.3060	1.206	1.828	0.0850	0.0228	0.0361	0.0263
600	7/6/36	100.0030	99.9996	0.0012	29.670	G	824.1620	1.204	1.846	0.0848	0.0232	0.0352	0.0263
0	212	-0.0002	0.0000	0.0000	30.07	R	603.1117	1.158	1.931	0.0705	0.0222	0.0374	0.0179
600	7/8/36	-0.0001	+0.0001	0.0001	29.791	G	603.7107	1.185	1.766	0.1422	0.0238	0.0342	0.0179
0	213	-0.0010	-0.0008	-0.0008	30.34	R	603.1045	1.186	1.845	0.1242	0.0227	0.0363	0.0181
600	7/8/36	-0.0006	-0.0007	0.0001	29.828	G	603.7278	1.238	1.818	0.0838	0.0247	0.0348	0.0181
150	214	150.0112	150.0071	150.0088	30.75	R	933.2537	1.201	1.824	0.1117	0.0230	0.0360	0.0327
600	7/9/36	150.0108	150.0062	0.0022	29.891	G	934.2202	1.152	1.466	0.1090	0.0220	0.0298	0.0327
150	215	150.0025	149.9980	149.9998	31.05	R	933.2372	1.082	1.908	0.1108	0.0210	0.0371	0.0331
600	7/10/36	150.0025	149.9962	0.0027	29.868	G	934.1942	1.064	1.661	0.1022	0.0205	0.0327	0.0331
100	216	99.9977	99.9976	99.9975	30.87	R	823.3142	1.142	1.841	0.1232	0.0217	0.0362	0.0285
600	7/10/36	99.9987	99.9961	0.0007	29.910	G	824.1772	1.184	1.536	0.1048	0.0229	0.0308	0.0285
		t_b(308) / t_b(307)	t_b(306) / t_b(310)										
100	217	99.9993	99.9991	99.9991	29.95	R	823.3117	1.100	1.917	0.0713	0.0210	0.0372	0.0274
600	7/11/36	100.0007	99.9973	0.0009	29.749	G	824.1515	1.116	1.761	0.0998	0.0218	0.0341	0.0274
150	218	150.0040	149.9992	150.0012	29.07	R	933.2163	1.098	1.898	0.1045	0.0213	0.0370	0.0303
600	7/13	150.0042	149.9972	0.0030	29.654	G	934.1690	1.065	1.834	0.0882	0.0205	0.0350	0.0303
150	219	150.0026	149.9993	150.0014	29.40	R	933.2157	1.140	1.865	0.0978	0.0220	0.0365	0.0308
600	7/13/36	150.0052	149.9984	0.0025	29.678	G	934.1762	1.158	1.853	0.0835	0.0221	0.0352	0.0308
0	220	+0.0006	+0.0011	+0.0008	29.54	R	603.1038	1.162	1.843	0.1128	0.0222	0.0363	0.0174
600	7/15/36	+0.0007	+0.0007	0.0002	29.716	G	603.7190	1.245	1.595	0.1393	0.0249	0.0317	0.0174
0	221	-0.0016	-0.0012	-0.0014	29.60	R	603.1018	1.213	1.898	0.0888	0.0231	0.0370	0.0174
600	7/15/36	-0.0012	-0.0016	0.0002	29.691	G	603.7227	1.280	1.666	0.0840	0.0255	0.0328	0.0175
100	222	99.9932	99.9927	99.9935	30.22	R	823.3080	1.150	1.870	0.0822	0.0219	0.0366	0.0277
600	7/16/36	99.9958	99.9923	0.0012	29.771	G	824.1587	1.144	1.633	0.0840	0.0222	0.0323	0.0277
100	223	99.9925	99.9920	99.9926	30.29	R	823.3020	1.192	1.869	0.0990	0.0225	0.0366	0.0278
600	7/16/36	99.9947	99.9914	0.0010	29.779	G	824.1515	1.228	1.705	0.1085	0.0236	0.0334	0.0278
0	224	-0.0002	+0.0001	+0.0001	29.37	R	603.1112	1.199	1.832	0.0598	0.0229	0.0361	0.0172
600	7/24/36	+0.0013	-0.0008	0.0006	29.732	G	603.7153	1.200	1.810	0.1058	0.0241	0.0347	0.0173
0	225	-0.0006	0.0000	-0.0003	29.47	R	603.1010	1.191	1.711	0.1178	0.0227	0.0345	0.0173
600	7/24/36	-0.0003	-0.0002	0.0002	29.734	G	603.7177	1.265	1.648	0.1220	0.0252	0.0325	0.0173
0	226	-0.0020	-0.0019	-0.0020	29.89	R	335.0465	1.248	1.805	0.1222	0.0250	0.0358	0.0096
333	7/31/36	-0.0023	-0.0018	0.0002	29.781	G	336.0598	1.404	1.741	0.0390	0.0272	0.0338	0.0097
0	227	-0.0015	-0.0012	-0.0014	29.52	R	335.0535	1.313	1.638	0.1010	0.0261	0.0334	0.0094
333	7/31/36	-0.0014	-0.0015	0.0001	29.787	G	336.0387	1.426	1.661	0.1365	0.0275	0.0327	0.0094

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
818.6875	-5	0.002993	34.0	32.8	29.34	29.648	0.0229	0.2190	0.6504	0.0016	-0.0051	819.576
819.5355	-3	0.002988	34.0	32.0	29.03	29.648	0.0214	0.2106	0.6523	0.0016	-0.0051	820.416
818.6821	-4	0.002990	34.0	32.0	29.15	29.633	0.0229	0.2083	0.6486	0.0016	-0.0024	819.561
819.5346	-2	0.002988	34.0	31.8	29.22	29.633	0.0214	0.2080	0.6515	0.0016	-0.0024	820.415
599.7045	-1	0.003473	30.0	30.0	30.12	29.784	0.0262	0.0642	-0.2021	-0.0004	0.0000	599.592
600.3049	0	0.003472	30.0	30.0	30.08	29.784	0.0247	0.0711	-0.2035	-0.0004	0.0000	600.197
599.6951	+1	0.003467	30.0	31.0	30.36	29.830	0.0261	0.0717	-0.2038	-0.0004	0.0018	599.590
600.3184	0	0.003466	30.0	30.0	30.40	29.830	0.0247	0.0615	-0.2034	-0.0004	0.0018	600.203
927.9801	+1	0.002866	31.0	30.7	30.77	29.913	0.0224	0.3290	1.2575	0.0033	-0.0194	929.573
928.9463	-1	0.002842	31.0	31.0	30.48	29.913	0.0205	0.2999	1.2511	0.0033	-0.0194	930.502
927.9648	+1	0.002863	31.0	31.0	31.11	29.881	0.0224	0.3342	1.2583	0.0033	0.0004	929.583
928.9203	-1	0.002834	31.0	31.0	31.00	29.881	0.0205	0.3124	1.2542	0.0033	0.0004	930.511
818.6557	-5	0.003017	31.0	31.0	30.75	29.930	0.0237	0.2198	0.6475	0.0016	0.0055	819.554
819.5203	-3	0.002999	31.0	31.0	30.36	29.930	0.0219	0.1941	0.6445	0.0016	0.0055	820.388
818.6743	-1	0.003034	30.0	30.0	29.83	29.730	0.0239	0.2098	0.6507	0.0016	0.0020	819.562
819.5132	-1	0.003013	30.0	30.0	29.55	29.730	0.0221	0.2072	0.6523	0.0016	0.0020	820.398
927.9776	0	0.002870	29.3	29.0	29.02	29.602	0.0224	0.3314	1.2690	0.0034	-0.0026	929.601
928.9262	0	0.002850	30.0	30.0	28.78	29.602	0.0204	0.3201	1.2685	0.0034	-0.0026	930.536
927.9747	+1	0.002852	30.0	30.0	29.40	29.637	0.0221	0.3272	1.2636	0.0033	-0.0031	929.588
928.9312	-1	0.002847	30.0	30.0	29.15	29.637	0.0204	0.3197	1.2667	0.0034	-0.0031	930.538
599.7054	-2	0.003441	30.0	30.0	29.55	29.705	0.0258	0.0691	-0.2025	-0.0004	-0.0018	599.596
600.3244	-2	0.003453	29.0	29.3	29.28	29.705	0.0246	0.0624	-0.2017	-0.0004	-0.0018	600.208
599.7063	-4	0.003438	30.0	30.0	29.58	29.680	0.0258	0.0664	-0.2023	-0.0004	0.0031	599.599
600.3304	-3	0.003449	29.0	29.7	29.31	29.680	0.0245	0.0545	-0.2011	-0.0004	0.0031	600.211
818.6691	+3	0.003001	32.2	31.0	30.27	29.758	0.0233	0.2104	0.6465	0.0016	0.0143	819.565
819.5196	+3	0.002998	31.0	31.0	30.13	29.758	0.0219	0.1950	0.6465	0.0016	0.0143	820.399
818.6626	-6	0.003015	30.8	30.8	30.23	29.776	0.0236	0.2146	0.6487	0.0016	0.0163	819.567
819.5116	-5	0.003010	30.8	31.0	30.03	29.776	0.0220	0.2059	0.6499	0.0016	0.0163	820.407
599.7117	-2	0.003436	30.0	29.0	29.32	29.718	0.0258	0.0577	-0.2011	-0.0004	-0.0002	599.594
600.3151	0	0.003444	29.0	29.0	29.12	29.718	0.0245	0.0656	-0.2021	-0.0004	-0.0002	600.202
599.7029	0	0.003432	30.0	30.0	29.42	29.722	0.0257	0.0643	-0.2022	-0.0004	0.0007	599.591
600.3206	+1	0.003441	29.0	29.0	29.28	29.722	0.0245	0.0615	-0.2020	-0.0004	0.0007	600.205
333.1516	+1	0.003438	30.0	30.0	29.77	29.776	0.0143	0.0389	-0.1129	-0.0001	0.0024	333.094
334.1635	-2	0.003447	30.0	30.0	29.68	29.776	0.0136	0.0275	-0.1122	-0.0001	0.0024	334.095
333.1615	+1	0.003431	30.0	30.0	29.36	29.784	0.0143	0.0322	-0.1121	-0.0001	0.0017	333.098
334.1432	-1	0.003443	29.3	29.2	29.05	29.784	0.0136	0.0365	-0.1126	-0.0001	0.0017	334.082

TABLE XI (Continued)

t_r / p_o	Run No. / Date	t_b(308) / t_b(307)	t_b(306) / t_b(310)	t_b(ave.) / Ave. dev.	t_s / t_{H_2}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	ρ'
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15
100	228	100.0018	100.0010	100.0014	30.22	R	457.2808	1.128	1.867	0.1357	0.0222	0.0366	0.0153	454.
333	8/5/36	100.0001	100.0029	0.0009	29.864	G	458.6567	1.184	1.710	0.0605	0.0235	0.0334	0.0154	456.
100	229	100.0018	100.0010	100.0016	30.37	R	457.2837	1.174	1.650	0.0995	0.0230	0.0336	0.0154	454.
333	8/5/36	100.0004	100.0030	0.0008	29.812	G	458.6432	1.200	1.697	0.0938	0.0238	0.0333	0.0155	456.
0	230	+0.0014	+0.0018	+0.0016	29.75	R	335.0492	1.181	1.852	0.1307	0.0239	0.0364	0.0095	333.
333	8/8/36	+0.0017	+0.0017	0.0002	29.771	G	336.0478	1.368	1.728	0.1067	0.0266	0.0337	0.0096	334.
0	231	-0.0008	-0.0003	-0.0005	29.49	R	335.0600	1.291	1.696	0.1010	0.0258	0.0342	0.0094	333.
333	8/8/36	-0.0004	-0.0005	0.0002	29.747	G	336.0543	1.392	1.730	0.0800	0.0270	0.0337	0.0094	334.
150	232	150.0054	149.9978	150.0016	30.07	R	518.2923	1.178	1.868	0.0838	0.0229	0.0366	0.0165	515.
333	8/10/36	150.0008	150.0025	0.0023	29.745	G	519.8352	1.279	1.764	0.0927	0.0253	0.0341	0.0165	516.
150	233	150.0041	149.9977	150.0006	30.37	R	518.2913	1.223	1.877	0.1057	0.0237	0.0367	0.0167	515.
333	8/10/36	149.9994	150.0011	0.0020	29.794	G	519.8335	1.249	1.788	0.0927	0.0248	0.0344	0.0168	516.
0	234	+0.0003	+0.0007	+0.0005	29.77	R	335.0595	1.252	1.926	0.0980	0.0251	0.0373	0.0095	333.
333	8/12/36	+0.0008	+0.0002	0.0002	29.757	G	336.0417	1.363	1.816	0.1575	0.0265	0.0348	0.0096	334.
0	235	-0.0006	0.0000	-0.0004	29.77	R	335.0568	1.291	1.706	0.0847	0.0258	0.0344	0.0095	333.
333	8/12/36	-0.0005	-0.0006	0.0002	29.752	G	336.0433	1.384	1.806	0.1232	0.0269	0.0347	0.0096	334.
100	236	100.0016	100.0010	100.0016	29.97	R	457.2843	1.249	1.902	0.1173	0.0242	0.0370	0.0152	454.
333	8/13/36	100.0014	100.0023	0.0004	29.745	G	458.6275	1.322	1.801	0.1420	0.0259	0.0346	0.0152	456.
100	237	100.0008	100.0002	100.0007	30.15	R	457.2807	1.292	1.846	0.1167	0.0250	0.0363	0.0153	454.
333	8/13/36	100.0005	100.0012	0.0003	29.767	G	458.6390	1.359	1.926	0.0785	0.0265	0.0361	0.0153	456.
0	238	-0.0009	-0.0012	-0.0013	30.32	R	335.0703	1.226	1.849	0.0920	0.0247	0.0363	0.0098	333.
333	8/14/36	-0.0018	-0.0014	0.0003	29.826	G	336.0537	1.384	1.883	0.1190	0.0269	0.0356	0.0099	334.
0	239	-0.0011	+0.0004	-0.0004	29.67	R	335.0647	1.305	1.747	0.1107	0.0260	0.0350	0.0095	333.
333	8/14/36	-0.0001	-0.0007	0.0005	29.798	G	336.0550	1.396	1.888	0.1080	0.0271	0.0357	0.0095	334.
150	240	150.0049	150.0005	150.0026	30.72	R	518.2982	1.197	1.879	0.1393	0.0233	0.0367	0.0170	515.
333	8/18/36	150.0012	150.0040	0.0018	29.866	G	519.8533	1.257	1.880	0.0818	0.0249	0.0356	0.0170	516.
150	241	150.0056	150.0016	150.0034	30.92	R	518.3202	1.227	1.886	0.0673	0.0237	0.0368	0.0171	515.
333	8/18/36	150.0021	150.0045	0.0016	29.859	G	519.8577	1.244	1.882	0.0718	0.0247	0.0356	0.0172	516.
100	242	100.0013	99.9995	100.0008	29.92	R	457.2883	1.164	1.862	0.0985	0.0228	0.0365	0.0151	454.
333	8/19/36	100.0005	100.0017	0.0008	29.813	G	458.6457	1.225	1.834	0.1250	0.0242	0.0350	0.0151	456.
100	243	100.0006	99.9985	99.9998	30.14	R	457.3018	1.224	1.727	0.0893	0.0238	0.0347	0.0153	454.
333	8/19/36	99.9992	100.0010	0.0010	29.845	G	458.6583	1.262	1.922	0.0792	0.0249	0.0360	0.0153	456.
150	244	150.0039	149.9994	150.0016	30.29	R	518.3067	1.229	1.931	0.1023	0.0238	0.0374	0.0167	515.
333	8/20/36	150.0006	150.0023	0.0016	29.876	G	519.8403	1.291	1.805	0.1240	0.0255	0.0347	0.0167	516.
150	245	150.0030	149.9983	150.0006	30.15	R	518.3075	1.250	1.737	0.0850	0.0241	0.0348	0.0166	515.
333	8/20/36	149.9994	150.0016	0.0017	29.820	G	519.8445	1.268	1.859	0.1000	0.0251	0.0353	0.0166	516.
0	246	+0.0003	-0.0001	-0.0001	29.34	R	335.0663	1.269	1.904	0.1018	0.0254	0.0370	0.0093	333.
333	8/24/36	-0.0007	+0.0002	0.0003	29.767	G	336.0527	1.440	1.863	0.0888	0.0277	0.0354	0.0094	334.

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
454.6903	0	0.003024	31.0	30.2	30.07	29.877	0.0132	0.1256	0.3619	0.0005	-0.0017	455.190
456.0630	+1	0.003035	31.0	30.0	29.72	29.877	0.0124	0.1081	0.3609	0.0005	-0.0017	456.543
454.7014	-1	0.003020	31.0	30.7	30.26	29.818	0.0131	0.1125	0.3586	0.0005	-0.0020	455.184
456.0544	+2	0.003031	31.0	30.3	30.07	29.818	0.0124	0.1129	0.3616	0.0005	-0.0020	456.540
333.1531	0	0.003439	30.0	30.0	29.69	29.765	0.0143	0.0410	-0.1130	-0.0001	-0.0020	333.093
334.1516	-1	0.003449	30.0	30.0	29.66	29.765	0.0136	0.0349	-0.1128	-0.0001	-0.0020	334.085
333.1693	+1	0.003437	30.0	30.0	29.40	29.743	0.0143	0.0338	-0.1121	-0.0001	0.0006	333.106
334.1597	-1	0.003453	29.0	29.0	29.17	29.743	0.0137	0.0319	-0.1119	-0.0001	0.0006	334.094
515.3691	-2	0.002857	32.0	31.0	30.06	29.734	0.0123	0.1800	0.6987	0.0010	-0.0020	516.259
516.9081	+2	0.002859	31.0	32.0	30.14	29.734	0.0115	0.1771	0.7018	0.0010	-0.0020	517.798
515.3644	+2	0.002852	32.0	31.0	30.22	29.792	0.0122	0.1843	0.6995	0.0010	-0.0007	516.261
516.9014	+3	0.002858	32.0	32.0	30.27	29.792	0.0114	0.1780	0.7015	0.0010	-0.0007	517.793
333.1645	0	0.003436	30.0	30.0	29.65	29.755	0.0143	0.0390	-0.1128	-0.0001	-0.0006	333.104
334.1452	-1	0.003452	29.0	29.3	29.39	29.755	0.0137	0.0428	-0.1132	-0.0001	-0.0006	334.088
333.1657	+1	0.003436	30.0	30.0	29.63	29.749	0.0143	0.0322	-0.1121	-0.0001	0.0005	333.100
334.1475	0	0.003452	29.0	29.5	29.30	29.749	0.0137	0.0387	-0.1128	-0.0001	0.0005	334.088
454.7051	-1	0.003003	31.5	31.0	29.92	29.739	0.0130	0.1238	0.3614	0.0005	-0.0020	455.202
456.0448	-1	0.003010	31.0	31.0	29.87	29.739	0.0122	0.1237	0.3640	0.0005	-0.0020	456.543
454.7013	0	0.002997	32.0	31.0	30.05	29.767	0.0129	0.1220	0.3603	0.0005	-0.0009	455.196
456.0536	+1	0.003008	31.0	31.0	30.03	29.767	0.0122	0.1179	0.3622	0.0005	-0.0009	456.546
333.1720	+1	0.003432	31.0	31.0	30.25	29.826	0.0143	0.0366	-0.1135	-0.0001	0.0016	333.111
334.1528	0	0.003448	30.0	30.0	30.02	29.826	0.0137	0.0400	-0.1138	-0.0001	0.0016	334.094
333.1704	0	0.003434	30.2	30.0	29.55	29.797	0.0143	0.0362	-0.1126	-0.0001	0.0005	333.109
334.1555	-1	0.003453	29.0	29.3	29.27	29.797	0.0137	0.0389	-0.1129	-0.0001	0.0005	334.096
515.3644	-3	0.002863	32.0	32.0	30.67	29.868	0.0123	0.1902	0.7009	0.0010	-0.0032	516.266
516.9134	+1	0.002873	31.7	32.5	30.54	29.868	0.0116	0.1794	0.7017	0.0010	-0.0032	517.804
515.3874	-3	0.002860	32.0	32.0	30.80	29.866	0.0123	0.1777	0.6956	0.0010	-0.0042	516.270
516.9185	+1	0.002872	32.0	32.0	30.59	29.866	0.0116	0.1777	0.7010	0.0010	0.0042	517.806
454.7025	-1	0.003021	31.0	30.5	29.93	29.805	0.0131	0.1196	0.3608	0.0005	-0.0010	455.196
456.0551	+1	0.003027	31.0	31.0	30.05	29.805	0.0124	0.1222	0.3636	0.0005	-0.0010	456.553
454.7163	-1	0.003015	31.0	31.0	30.05	29.847	0.0131	0.1136	0.3588	0.0005	0.0002	455.202
456.0649	0	0.003026	31.0	31.0	30.15	29.847	0.0124	0.1179	0.3623	0.0005	0.0002	456.558
515.3715	-1	0.002874	31.0	31.0	30.19	29.881	0.0124	0.1856	0.7007	0.0010	-0.0020	516.269
516.9007	+1	0.002883	31.0	31.8	29.93	29.881	0.0116	0.1841	0.7050	0.0010	-0.0020	517.800
515.3803	-1	0.002871	31.0	31.0	30.06	29.824	0.0124	0.1753	0.6971	0.0010	-0.0007	516.265
516.9091	+1	0.002883	31.0	32.0	29.81	29.824	0.0116	0.1818	0.7046	0.0010	-0.0007	517.808
333.1711	-1	0.003433	30.0	30.0	29.20	29.759	0.0143	0.0389	-0.1125	-0.0001	0.0001	333.112
334.1559	0	0.003453	29.0	29.0	29.15	29.759	0.0137	0.0361	-0.1124	-0.0001	0.0001	334.093

TABLE XI (Continued)

t_r P_o	Run No. Date	$t_b(308)$ $t_b(307)$	$t_b(306)$ $t_b(310)$	t_b(ave.) Ave. dev.	t_a t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
0	247	0.0000	+0.0005	+0.0003	29.49	R	335.0677	1.310	1.698	0.1070	0.0261	0.0343	0.0094
333	8/24/36	+0.0004	+0.0003	0.0002	29.745	G	336.0535	1.424	1.826	0.1022	0.0275	0.0349	0.0094
100	248	99.9997	99.9982	99.9995	29.69	R	457.2865	1.198	1.880	0.1017	0.0234	0.0367	0.0150
333	8/26/36	99.9991	100.0010	0.0008	29.732	G	458.6462	1.318	1.866	0.1200	0.0258	0.0354	0.0150
100	249	99.9997	99.9985	99.9996	29.50	R	457.2893	1.258	1.701	0.0870	0.0244	0.0343	0.0148
333	8/26/36	99.9991	100.0010	0.0008	29.698	G	458.6448	1.312	1.788	0.0945	0.0257	0.0344	0.0148
0	250	-0.0002	-0.0009	-0.0007	29.30	R	335.0672	1.267	1.924	0.1000	0.0254	0.0373	0.0093
333	8/27/36	-0.0011	-0.0007	0.0003	29.691	G	336.0643	1.398	1.788	0.0818	0.0271	0.0344	0.0093
0	251	+0.0002	-0.0001	-0.0002	29.57	R	335.0692	1.299	1.717	0.0970	0.0259	0.0345	0.0094
333	8/27/36	-0.0007	-0.0001	0.0003	29.692	G	336.0565	1.402	1.750	0.1117	0.0272	0.0340	0.0095
		$t_b(308)$ $t_b(307)$	$t_b(107)$ $t_b(310)$										
150	252	150.0076	150.0026	150.0059	29.60	R	518.3085	1.157	1.948	0.0742	0.0226	0.0376	0.0161
333	9/4/36	150.0090	150.0043	0.0024	29.749	G	519.8358	1.216	1.597	0.1215	0.0242	0.0318	0.0161
150	253	150.0071	150.0029	150.0062	29.64	R	518.3038	1.218	1.885	0.0862	0.0236	0.0368	0.0162
333	9/4/36	150.0095	150.0052	0.0021	29.719	G	519.8415	1.303	1.653	0.0943	0.0257	0.0326	0.0162
444.6	254	444.6207	444.6132	444.6179	30.40	R	876.2880	1.091	1.904	0.1042	0.0210	0.0370	0.0297
333	9/8/36	444.6163	444.6214	0.0032	29.884	G	878.9420	1.085	1.351	0.1095	0.0208	0.0279	0.0297
444.6	255	444.6273	444.6198	444.6244	31.07	R	876.3060	1.143	1.881	0.1163	0.0219	0.0368	0.0305
333	9/8/36	444.6226	444.6279	0.0032	29.908	G	878.9463	1.103	1.600	0.1157	0.0211	0.0318	0.0306
150	256	150.0070	150.0042	150.0063	29.45	R	518.3545	1.120	1.913	0.1423	0.0219	0.0372	0.0160
333	9/14/36	150.0084	150.0055	0.0014	29.673	G	519.9230	1.241	1.674	0.1398	0.0246	0.0329	0.0160
150	257	150.0093	150.0071	150.0090	29.37	R	518.3683	1.210	1.942	0.0848	0.0235	0.0375	0.0159
333	9/14/36	150.0109	150.0088	0.0011	29.660	G	519.9437	1.320	1.726	0.1095	0.0260	0.0336	0.0160
444.6	258	444.6264	444.6146	444.6220	29.84	R	876.2653	1.109	1.950	0.0735	0.0213	0.0376	0.0289
333	9/15/36	444.6219	444.6253	0.0038	29.734	G	878.9225	1.145	1.714	0.0748	0.0218	0.0335	0.0290
444.6	259	444.6284	444.6150	444.6234	29.87	R	876.2505	1.181	1.920	0.1218	0.0225	0.0372	0.0290
333	9/15/36	444.6233	444.6268	0.0042	29.739	G	878.9097	1.216	1.707	0.0977	0.0229	0.0334	0.0290
150	260	150.0062	150.0010	150.0058	29.95	R	518.3837	1.168	1.916	0.1247	0.0228	0.0372	0.0164
333	9/17/36	150.0095	150.0065	0.0024	29.772	G	519.9690	1.319	1.893	0.0597	0.0259	0.0357	0.0164
150	261	150.0034	149.9977	150.0026	29.95	R	518.3857	1.220	1.926	0.1153	0.0236	0.0373	0.0164
333	9/17/36	150.0062	150.0031	0.0024	29.776	G	519.9638	1.348	1.804	0.1028	0.0264	0.0346	0.0164
444.6	262	444.6288	444.6128	444.6232	29.59	R	876.2943	1.134	1.931	0.0880	0.0217	0.0374	0.0286
333	9/18/36	444.6222	444.6292	0.0058	29.721	G	878.9511	1.081	1.720	0.1080	0.0207	0.0336	0.0287
444.6	263	444.6270	444.6116	444.6220	29.74	R	876.2920	1.199	1.911	0.1060	0.0228	0.0371	0.0288
333	9/18/36	444.6216	444.6276	0.0054	29.719	G	878.9490	1.184	1.811	0.0992	0.0224	0.0347	0.0289
150	264	149.9980	149.9952	149.9975	29.42	R	518.3923	1.206	1.932	0.0872	0.0234	0.0374	0.0160
333	9/22/36	149.9988	149.9980	0.0012	29.716	G	519.9770	1.246	1.749	0.0895	0.0247	0.0339	0.0160

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
333.1773	0	0.003426	30.0	30.0	29.43	29.739	0.0142	0.0345	-0.1124	-0.0001	-0.0004	333.113
334.1583	0	0.003449	29.0	29.7	29.29	29.739	0.0136	0.0368	-0.1126	-0.0001	-0.0004	334.096
454.7077	-4	0.003023	31.0	30.0	29.62	29.718	0.0131	0.1206	0.3621	0.0005	0.0006	455.205
456.0634	+1	0.003020	30.2	30.8	29.40	29.718	0.0123	0.1225	0.3648	0.0005	0.0006	456.564
454.7164	-4	0.003028	30.8	30.0	29.47	29.688	0.0132	0.1123	0.3607	0.0005	0.0005	455.204
456.0655	+1	0.003024	30.0	30.8	29.22	29.688	0.0123	0.1160	0.3638	0.0005	0.0005	456.559
333.1763	0	0.003437	30.0	29.7	29.16	29.680	0.0143	0.0392	-0.1122	-0.0001	0.0009	333.118
334.1723	0	0.003459	29.0	29.0	28.95	29.680	0.0137	0.0336	-0.1117	-0.0001	0.0009	334.109
333.1816	0	0.003433	30.0	30.0	29.41	29.684	0.0143	0.0338	-0.1120	-0.0001	0.0002	333.118
334.1652	-1	0.003458	29.0	29.0	29.11	29.684	0.0137	0.0360	-0.1121	-0.0001	0.0002	334.103
515.3831	-2	0.002864	30.0	30.0	29.97	29.739	0.0075	0.1811	0.7002	0.0010	-0.0072	516.266
516.9091	+1	0.002834	31.0	30.0	29.19	29.739	0.0084	0.1754	0.7023	0.0010	-0.0072	517.789
515.3831	-1	0.002864	30.0	30.0	29.97	29.713	0.0074	0.1811	0.7003	0.0010	-0.0076	516.265
516.9184	0	0.002835	31.0	30.0	29.21	29.713	0.0084	0.1729	0.7015	0.0010	-0.0076	517.795
871.3326	-3	0.002262	32.0	31.2	30.98	29.910	-0.0023	0.7655	4.0656	0.0069	-0.0219	876.146
873.9804	-2	0.002088	35.0	31.0	30.64	29.910	-0.0021	0.7269	4.0243	0.0068	-0.0219	878.714
871.3486	-2	0.002256	32.0	31.7	31.17	29.943	-0.0024	0.7678	4.0660	0.0069	-0.0298	876.157
873.9782	-1	0.002082	35.0	31.3	30.77	29.943	-0.0022	0.7470	4.0498	0.0069	-0.0299	878.750
515.4356	-1	0.002961	29.0	30.0	29.42	29.654	0.0082	0.1920	0.7105	0.0010	-0.0077	516.340
517.0022	-1	0.002877	30.0	30.0	29.19	29.654	0.0088	0.1817	0.7072	0.0010	-0.0077	517.893
515.4517	-1	0.002961	29.2	30.0	29.33	29.644	0.0082	0.1829	0.7071	0.0010	-0.0110	516.340
517.0247	-1	0.002879	30.0	30.0	29.19	29.644	0.0088	0.1785	0.7061	0.0010	-0.0110	517.908
871.3326	-1	0.002480	30.0	30.0	29.70	29.713	0.0006	0.7591	4.0959	0.0069	-0.0269	876.168
873.9795	-1	0.002305	30.0	30.0	29.35	29.713	0.0009	0.7426	4.0814	0.0069	-0.0269	878.784
871.3188	-1	0.002478	30.0	30.0	29.65	29.726	0.0006	0.7718	4.1130	0.0070	-0.0286	876.183
873.9672	-1	0.002305	30.0	30.0	29.25	29.726	0.0008	0.7489	4.0902	0.0070	-0.0287	878.785
515.4566	-2	0.002962	30.0	30.0	29.79	29.763	0.0082	0.1890	0.7079	0.0010	-0.0071	516.356
517.0376	+2	0.002883	30.0	30.0	29.50	29.763	0.0089	0.1761	0.7040	0.0010	-0.0071	517.920
515.4590	-1	0.002959	30.0	30.0	29.80	29.771	0.0082	0.1877	0.7072	0.0010	-0.0032	516.360
517.0336	+1	0.002882	30.0	30.0	29.47	29.771	0.0088	0.1803	0.7057	0.0010	-0.0032	517.926
871.3638	-4	0.002481	30.0	30.0	29.53	29.692	0.0006	0.7622	4.1018	0.0069	-0.0283	876.207
874.0085	0	0.002310	30.0	30.0	28.99	29.692	0.0009	0.7529	4.0981	0.0070	-0.0284	878.839
871.3634	0	0.002480	30.0	30.0	29.58	29.696	0.0006	0.7666	4.1071	0.0070	-0.0269	876.218
874.0075	+4	0.002310	30.0	30.0	29.10	29.696	0.0009	0.7564	4.1020	0.0070	-0.0269	878.847
515.4704	-1	0.002962	29.0	29.8	29.25	29.699	0.0082	0.1829	0.7070	0.0010	0.0031	516.373
517.0510	+1	0.002884	29.3	29.3	29.08	29.699	0.0089	0.1760	0.7053	0.0010	0.0031	517.945

TABLE XI (Continued)

t_r P_o	Run No. Date	t_b(308) t_b(307)	t_b(107) t_b(310)	t_b(ave.) Ave. dev.	t_s t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	p'
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15
150	265	149.9982	149.9955	149.9975	29.55	R	518.3933	1.237	1.914	0.0955	0.0239	0.0372	0.0161	515.4
333	9/22/36	149.9981	149.9982	0.0010	29.716	G	519.9773	1.295	1.754	0.1030	0.0256	0.0340	0.0161	517.0
400	266	400.0032	400.0056	400.0048	30.25	R	822.3055	1.171	1.934	0.0990	0.0222	0.0374	0.0277	817.6
333	9/23/36	400.0032	400.0071	0.0016	29.782	G	824.8013	1.154	1.840	0.1003	0.0224	0.0351	0.0278	820.1
356.58	267	356.5776	356.5782	356.5774	30.29	R	769.6923	1.181	1.929	0.1098	0.0223	0.0373	0.0262	765.3
333	9/24/36	356.5762	356.5774	0.0006	29.782	G	772.0612	1.258	1.837	0.0710	0.0246	0.0350	0.0262	767.7
300	268	299.9993	299.9968	299.9976	29.87	R	700.9952	1.118	1.928	0.1150	0.0213	0.0373	0.0237	697.0
333	9/24/36	299.9972	299.9973	0.0008	29.757	G	703.1445	1.050	1.873	0.0855	0.0215	0.0355	0.0237	699.1
250	269	250.0064	250.0052	250.0054	29.69	R	640.2400	1.156	1.930	0.0823	0.0220	0.0374	0.0198	636.6
333	9/25/36	250.0050	250.0048	0.0006	29.677	G	642.1908	1.215	1.794	0.0918	0.0244	0.0345	0.0199	638.5
200	270	200.0069	200.0054	200.0063	29.79	R	579.3825	1.177	1.884	0.1143	0.0226	0.0368	0.0171	576.1
333	9/28/36	200.0071	200.0057	0.0007	29.756	G	581.1592	1.203	1.688	0.1030	0.0241	0.0331	0.0172	577.8
150	271	150.0018	149.9966	149.9992	29.45	R	518.4138	1.240	1.948	0.0928	0.0239	0.0376	0.0160	515.4
333	9/29/36	149.9987	149.9995	0.0015	29.656	G	519.9933	1.231	1.870	0.1117	0.0245	0.0354	0.0160	517.0
150	272	150.0012	149.9957	149.9986	29.37	R	518.4203	1.244	1.914	0.0992	0.0240	0.0372	0.0159	515.5
333	9/29/36	149.9983	149.9993	0.0016	29.674	G	519.9925	1.243	1.807	0.1428	0.0247	0.0347	0.0160	517.0
444.6	273	444.6354	444.6416	444.6398	29.45	R	876.3755	1.130	1.930	0.0877	0.0217	0.0374	0.0284	871.4
333	10/1/36	444.6390	444.6434	0.0026	29.680	G	879.0603	1.102	1.335	0.0847	0.0211	0.0276	0.0285	874.1
444.6	274	444.6292	444.6346	444.6330	29.52	R	876.3657	1.160	1.897	0.1008	0.0222	0.0370	0.0285	871.4
333	10/1/36	444.6322	444.6360	0.0023	29.712	G	879.0303	1.153	1.798	0.1043	0.0219	0.0346	0.0286	874.0
150	275	150.0020	149.9996	150.0006	29.37	R	518.4288	1.260	1.928	0.1097	0.0243	0.0373	0.0159	515.5
333	10/5/36	150.0007	150.0000	0.0008	29.683	G	520.0342	1.278	1.927	0.1032	0.0253	0.0361	0.0160	517.1
150	276	149.9996	149.9982	149.9988	29.45	R	518.4323	1.257	1.908	0.1027	0.0242	0.0371	0.0160	515.5
333	10/5/36	149.9990	149.9985	0.0005	29.694	G	520.0383	1.283	1.813	0.1042	0.0254	0.0348	0.0160	517.1
150	277	149.9983	149.9955	149.9975	29.37	R	518.4820	1.243	1.911	0.1045	0.0240	0.0371	0.0159	515.5
333	10/13/36	149.9980	149.9982	0.0010	29.638	G	520.1417	1.227	1.893	0.0665	0.0244	0.0357	0.0160	517.2
150	278	149.9988	149.9963	149.9980	29.37	R	518.4748	1.249	1.903	0.1197	0.0241	0.0370	0.0159	515.5
333	10/13/36	149.9986	149.9981	0.0008	29.638	G	520.1330	1.243	1.785	0.1250	0.0247	0.0344	0.0160	517.2
444.6	279	444.5989	444.6011	444.6003	29.45	R	876.3933	1.210	1.910	0.1272	0.0230	0.0371	0.0284	871.4
333	10/14/36	444.6008		0.0009	29.672	G	879.1845	1.177	1.848	0.1020	0.0223	0.0352	0.0285	874.2
444.6	280	444.5932	444.5928	444.5928	29.47	R	876.4018	1.187	1.911	0.1053	0.0226	0.0371	0.0284	871.4
333	10/14/36	444.5925		0.0002	29.685	G	879.1728	1.199	1.842	0.1030	0.0227	0.0351	0.0285	874.2
150	281	149.9992	149.9964	149.9984	29.37	R	518.4793	1.269	1.913	0.1020	0.0244	0.0372	0.0159	515.5
333	10/16/36	149.9996		0.0013	29.698	G	520.1250	1.336	1.855	0.1013	0.0262	0.0353	0.0160	517.1
150	282	149.9989	149.9972	149.9989	29.42	R	518.4852	1.254	1.923	0.0872	0.0242	0.0373	0.0160	515.5
333	10/16/36	150.0007		0.0012	29.712	G	520.1203	1.285	1.795	0.1433	0.0254	0.0345	0.0160	517.1
444.6	283	444.6029	444.5997	444.6039	29.59	R	876.4172	1.331	1.915	0.1073	0.0249	0.0372	0.0286	871.4
333	10/19/36	444.6061	444.6069	0.0026	29.688	G	879.1568	1.200	1.848	0.1070	0.0227	0.0352	0.0287	874.2

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
515.4722	-1	0.002962	29.5	30.0	29.41	29.705	0.0082	0.1838	0.7069	0.0010	0.0031	516.375
517.0521	+1	0.002885	30.0	30.0	29.21	29.705	0.0088	0.1785	0.7059	0.0010	0.0031	517.949
817.6701	-2	0.002526	30.0	30.0	30.03	29.776	0.0018	0.6613	3.4364	0.0058	-0.0059	821.770
820.1544	+2	0.002355	31.0	30.0	29.67	29.776	0.0020	0.6545	3.4339	0.0058	-0.0059	824.245
765.3530	-3	0.002579	30.0	30.7	30.09	29.782	0.0029	0.5665	2.8422	0.0048	0.0032	768.773
767.7131	-1	0.002422	31.0	30.2	29.70	29.782	0.0033	0.5498	2.8299	0.0048	0.0032	771.104
697.0439	-3	0.002666	30.0	30.0	29.79	29.745	0.0045	0.4483	2.1447	0.0035	0.0029	699.648
699.1830	+1	0.002524	30.0	30.0	29.60	29.745	0.0049	0.4373	2.1382	0.0035	0.0029	701.770
636.6377	-1	0.002748	30.0	30.0	29.59	29.654	0.0057	0.3443	1.5936	0.0026	-0.0066	638.577
638.5829	+2	0.002625	30.0	30.0	29.45	29.654	0.0063	0.3393	1.5922	0.0026	-0.0066	640.517
576.1133	-2	0.002843	29.8	30.0	29.65	29.747	0.0070	0.2620	1.1174	0.0017	-0.0077	577.494
577.8853	0	0.002743	30.0	30.0	29.50	29.747	0.0076	0.2506	1.1127	0.0017	-0.0077	579.250
515.4977	-1	0.002957	29.7	30.0	29.50	29.631	0.0082	0.1845	0.7072	0.0010	0.0010	516.400
517.0711	+1	0.002879	30.0	30.0	29.41	29.631	0.0088	0.1843	0.7081	0.0010	0.0010	517.974
515.5029	-1	0.002955	29.0	30.0	29.34	29.654	0.0081	0.1844	0.7074	0.0010	0.0017	516.406
517.0695	0	0.002879	30.0	30.0	29.15	29.654	0.0088	0.1874	0.7096	0.0010	0.0017	517.978
871.4508	-4	0.002473	30.0	30.0	29.42	29.642	0.0004	0.7621	4.1025	0.0070	-0.0486	876.274
874.1297	-2	0.002312	30.0	30.0	29.05	29.642	0.0009	0.7184	4.0524	0.0069	-0.0488	878.860
871.4370	-3	0.002469	30.0	30.0	29.41	29.684	0.0004	0.7640	4.1040	0.0070	-0.0403	876.272
874.0888	0	0.002309	30.0	30.0	29.06	29.684	0.0009	0.7569	4.1037	0.0070	-0.0404	878.917
515.5107	-1	0.002958	29.0	30.0	29.26	29.659	0.0082	0.1868	0.7086	0.0010	-0.0007	516.415
517.1093	+1	0.002886	30.0	29.0	29.14	29.659	0.0089	0.1848	0.7092	0.0010	-0.0007	518.012
515.5133	-1	0.002958	29.0	30.0	29.35	29.680	0.0082	0.1848	0.7075	0.0010	0.0015	516.416
517.1138	0	0.002885	29.8	29.7	29.08	29.680	0.0088	0.1809	0.7074	0.0010	0.0015	518.013
515.5677	-1	0.002955	29.0	30.0	29.31	29.612	0.0081	0.1853	0.7081	0.0010	0.0031	516.473
517.2199	0	0.002887	30.0	29.7	29.04	29.612	0.0089	0.1772	0.7066	0.0010	0.0031	518.117
515.5607	-1	0.002953	29.0	30.0	29.29	29.619	0.0081	0.1877	0.7090	0.0010	0.0024	516.469
517.2129	+1	0.002885	30.0	30.0	29.03	29.619	0.0088	0.1836	0.7089	0.0010	0.0024	518.118
871.4714	-2	0.002467	30.0	30.0	29.35	29.633	0.0003	0.7728	4.1166	0.0070	-0.0004	876.368
874.2481	-1	0.002301	30.0	30.0	29.14	29.633	0.0008	0.7594	4.1071	0.0070	-0.0004	879.122
871.4774	-2	0.002467	30.0	30.0	29.31	29.659	0.0003	0.7663	4.1074	0.0070	0.0088	876.367
874.2350	+1	0.002301	30.0	30.0	29.13	29.659	0.0008	0.7594	4.1064	0.0070	0.0088	879.117
515.5597	-2	0.002957	29.0	29.8	29.28	29.678	0.0082	0.1849	0.7078	0.0010	0.0020	516.464
517.1999	-2	0.002891	29.7	29.3	29.11	29.678	0.0089	0.1819	0.7082	0.0010	0.0020	518.102
515.5641	-3	0.002956	29.0	30.0	29.33	29.699	0.0082	0.1826	0.7066	0.0010	0.0013	516.464
517.1939	-1	0.002889	29.8	29.3	29.11	29.699	0.0089	0.1871	0.7101	0.0011	0.0013	518.102
871.4946	-1	0.002466	29.8	30.0	29.40	29.663	0.0004	0.7672	4.1082	0.0070	-0.0048	876.373
874.2187	+2	0.002297	30.5	30.0	29.18	29.663	0.0007	0.7608	4.1077	0.0070	-0.0048	879.090

TABLE XI (Continued)

t_r / P_o	Run No. / Date	$t_b(308)$ / $t_b(307)$	$t_b(107)$ / $t_b(310)$	t_b(ave.) / Ave. dev.	t_s / t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(1
444.6	284	444.5986	444.5986	444.6024	29.60	R	876.3978	1.331	1.893	0.1255	0.0249	0.0369	0.0286	871.
333	10/19/36	444.6038	444.6055	0.0023	29.698	G	879.1745	1.190	1.873	0.0832	0.0225	0.0355	0.0287	874.
150	285		149.9928	149.9957	29.65	R	518.4662	1.261	1.916	0.1042	0.0243	0.0372	0.0162	515
333	10/21/36	149.9973	149.9970	0.0019	29.722	G	520.1112	1.333	1.806	0.0945	0.0262	0.0347	0.0162	517.
150	286		149.9983	150.0009	29.57	R	518.4697	1.273	1.877	0.1087	0.0245	0.0367	0.0161	515
333	10/21/36	150.0025	150.0020	0.0018	29.717	G	520.1053	1.313	1.858	0.0957	0.0258	0.0353	0.0161	517.
150	287	150.0010	149.9970	149.9981	28.75	R	518.4645	1.309	1.941	0.1052	0.0250	0.0375	0.0155	515
333	10/28/36	149.9987	149.9958	0.0017	29.682	G	520.1042	1.348	1.876	0.0882	0.0264	0.0355	0.0155	517.
150	288	150.0009	149.9980	149.9986	28.84	R	518.4643	1.277	1.894	0.1132	0.0245	0.0369	0.0155	515
333	10/28/36	149.9996	149.9960	0.0016	29.685	G	520.1078	1.362	1.880	0.0713	0.0266	0.0356	0.0155	517
400	289	399.9986	399.9960	399.9972	29.34	R	822.4197	1.186	1.882	0.0970	0.0224	0.0368	0.0266	817
333	10/29/36	399.9966	399.9978	0.0010	29.745	G	824.9875	1.206	1.896	0.0945	0.0233	0.0358	0.0267	820.
356.58	290	356.5721	356.5707	356.5695	29.20	R	769.7767	1.154	1.909	0.1050	0.0219	0.0371	0.0249	765
333	10/29/36	356.5690	356.5661	0.0019	29.744	G	772.1897	1.219	1.916	0.0765	0.0239	0.0360	0.0250	767
200	291	200.0011	199.9998	199.9985	29.24	R	579.4363	1.136	1.948	0.0925	0.0219	0.0376	0.0166	576
333	10/30/36	199.9980	199.9951	0.0020	29.729	G	581.2497	1.260	1.771	0.0997	0.0251	0.0342	0.0167	577
150	292	150.0011	149.9976	149.9986	29.25	R	518.4713	1.263	1.874	0.1137	0.0243	0.0367	0.0158	515
333	10/31/36	149.9993	149.9962	0.0016	29.732	G	520.1002	1.363	1.897	0.1078	0.0266	0.0358	0.0159	517
150	293	150.0018	149.9973	149.9987	29.24	R	518.4748	1.305	1.862	0.1048	0.0250	0.0365	0.0158	515
333	10/31/36	149.9992	149.9964	0.0018	29.733	G	520.1075	1.370	1.932	0.0660	0.0268	0.0362	0.0159	517
356.58	294	356.5805	356.5781	356.5780	29.75	R	769.7888	1.146	1.933	0.1118	0.0217	0.0374	0.0255	765
333	11/2/36	356.5773	356.5762	0.0013	29.810	G	772.2048	1.172	1.874	0.0800	0.0231	0.0355	0.0256	767
300	295	300.0002	299.9972	299.9972	30.02	R	701.1103	1.248	1.932	0.1045	0.0218	0.0374	0.0239	697
333	11/3/36	299.9972	299.9942	0.0015	29.841	G	703.2937	1.246	1.876	0.0862	0.0250	0.0355	0.0239	699
250	296	250.0008	249.9995	249.9980	29.65	R	640.3070	1.127	1.918	0.1220	0.0216	0.0372	0.0198	636
333	11/3/36	249.9976	249.9940	0.0022	29.838	G	642.3140	1.191	1.878	0.0845	0.0240	0.0355	0.0199	638
150	297	150.0019	149.9989	149.9992	29.44	R	518.4533	1.286	1.927	0.1138	0.0247	0.0373	0.0160	515
333	11/5/36	149.9995	149.9965	0.0015	29.633	G	520.0852	1.363	1.858	0.0935	0.0266	0.0353	0.0160	517
150	298	150.0029	149.9981	149.9992	29.47	R	518.4577	1.278	1.926	0.1083	0.0246	0.0373	0.0160	515
333	11/5/36	149.9992	149.9968	0.0018	29.617	G	520.0798	1.369	1.823	0.1000	0.0267	0.0349	0.0160	517
250	299	249.9991	249.9960	249.9956	29.44	R	640.2702	1.193	1.886	0.1310	0.0227	0.0368	0.0195	636
333	11/6/36	249.9946	249.9929	0.0019	29.597	G	642.2682	1.222	1.947	0.1135	0.0245	0.0363	0.0197	638
300	300	300.0017	299.9991	299.9978	29.85	R	701.0977	1.222	1.907	0.0990	0.0230	0.0371	0.0237	697
333	11/6/36	299.9972	299.9933	0.0026	29.648	G	703.2743	1.224	1.902	0.0768	0.0246	0.0358	0.0237	699
356.58	301	356.5822	356.5855	356.5804	29.89	R	769.7755	1.197	1.871	0.1157	0.0226	0.0366	0.0257	765
333	11/7/36	356.5776	356.5765	0.0034	29.662	G	772.1530	1.202	1.871	0.1085	0.0237	0.0355	0.0258	767
150	302	149.9979	149.9904	149.9937	29.85	R	518.4588	1.248	1.915	0.0980	0.0241	0.0372	0.0163	515
333	11/9/36	149.9951	149.9914	0.0028	29.675	G	520.0735	1.358	1.740	0.1085	0.0266	0.0338	0.0164	517

TABLE XI (Continued)

δ_3	p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
0.0286	871.4740	-1	0.002464	29.7	30.0	29.40	29.680	0.0003	0.7713	4.1132	0.0070	-0.0029	876.363
0.0287	874.2342	+2	0.002298	30.0	30.0	29.12	29.680	0.0007	0.7555	4.1004	0.0070	-0.0029	879.095
0.0162	515.5446	-2	0.002952	30.0	30.0	29.59	29.707	0.0081	0.1854	0.7068	0.0010	0.0053	516.451
0.0162	517.1847	+1	0.002891	29.8	30.0	29.33	29.707	0.0089	0.1790	0.7063	0.0010	0.0053	518.085
0.0161	515.5492	-1	0.002952	30.0	30.0	29.55	29.707	0.0081	0.1848	0.7066	0.0010	-0.0011	516.449
0.0161	517.1782	+2	0.002891	30.0	30.0	29.30	29.707	0.0089	0.1812	0.7072	0.0010	-0.0011	518.075
0.0155	515.5464	-4	0.002955	29.0	29.0	28.75	29.650	0.0081	0.1863	0.7096	0.0010	0.0023	516.454
0.0155	517.1802	0	0.002883	29.0	29.0	28.70	29.650	0.0088	0.1804	0.7083	0.0010	0.0023	518.081
0.0155	515.5460	-3	0.002955	29.0	29.0	28.76	29.659	0.0081	0.1861	0.7095	0.0010	0.0017	516.452
0.0155	517.1836	0	0.002883	29.0	29.0	28.59	29.659	0.0088	0.1776	0.7073	0.0010	0.0017	518.080
0.0266	817.7889	-2	0.002521	29.3	30.0	29.20	29.726	0.0016	0.6578	3.4368	0.0058	0.0034	821.894
0.0267	820.3442	+1	0.002354	30.0	30.0	28.92	29.726	0.0019	0.6561	3.4405	0.0058	0.0034	824.452
0.0249	765.4407	-2	0.002576	29.2	30.0	29.09	29.722	0.0028	0.5643	2.8451	0.0048	0.0128	768.870
0.0250	767.8433	-1	0.002418	30.0	30.0	29.00	29.722	0.0032	0.5555	2.8396	0.0048	0.0129	771.259
0.0166	576.1677	-12	0.002842	29.2	29.8	29.13	29.709	0.0069	0.2599	1.1180	0.0017	0.0018	577.556
0.0167	577.9775	-10	0.002739	30.0	29.5	29.05	29.709	0.0075	0.2532	1.1157	0.0017	0.0018	579.357
0.0158	515.5489	-3	0.002951	29.3	30.0	29.23	29.718	0.0081	0.1855	0.7075	0.0010	0.0017	516.453
0.0159	517.1719	0	0.002873	30.0	30.0	29.27	29.718	0.0088	0.1846	0.7078	0.0010	0.0017	518.076
0.0158	515.5532	-1	0.002948	29.3	30.0	29.15	29.722	0.0081	0.1836	0.7067	0.0010	0.0016	516.454
0.0159	517.1788	0	0.002873	30.0	30.0	29.21	29.722	0.0088	0.1785	0.7055	0.0010	0.0016	518.074
0.0255	765.4437	0	0.002576	29.2	30.0	29.55	29.797	0.0029	0.5674	2.8457	0.0048	0.0024	768.867
0.0256	767.8494	+3	0.002419	30.0	30.0	29.26	29.797	0.0032	0.5545	2.8365	0.0048	0.0024	771.251
0.0239	697.1483	-2	0.002651	30.0	30.2	29.85	29.839	0.0043	0.4461	2.1405	0.0035	0.0034	699.746
0.0239	699.3244	+2	0.002513	30.0	30.0	29.62	29.839	0.0048	0.4378	2.1370	0.0035	0.0034	701.911
0.0198	636.6856	-2	0.002737	29.8	30.0	29.55	29.828	0.0056	0.3525	1.5975	0.0026	0.0024	638.646
0.0199	638.6854	+1	0.002612	30.0	30.0	29.36	29.828	0.0061	0.3415	1.5919	0.0026	0.0024	640.630
0.0160	515.5402	-2	0.002952	29.2	30.0	29.32	29.621	0.0081	0.1875	0.7087	0.0010	0.0010	516.446
0.0160	517.1668	0	0.002875	29.8	29.8	29.12	29.621	0.0088	0.1807	0.7073	0.0010	0.0010	518.066
0.0160	515.5460	-2	0.002952	29.5	30.0	29.36	29.604	0.0081	0.1865	0.7083	0.0010	0.0010	516.451
0.0160	517.1634	0	0.002875	30.0	30.0	29.23	29.604	0.0088	0.1805	0.7070	0.0010	0.0010	518.062
0.0195	636.6780	-3	0.002742	29.7	30.0	29.32	29.579	0.0056	0.3530	1.6010	0.0026	0.0054	638.646
0.0197	638.6673	+2	0.002623	30.0	30.0	28.99	29.579	0.0062	0.3507	1.6024	0.0026	0.0054	640.635
0.0237	697.1615	-2	0.002654	30.0	30.0	29.75	29.635	0.0044	0.4436	2.1411	0.0035	0.0027	699.757
0.0237	699.3287	+3	0.002515	30.2	30.0	29.50	29.635	0.0048	0.4368	2.1388	0.0035	0.0027	701.915
0.0257	765.4529	0	0.002570	30.0	30.0	29.80	29.648	0.0028	0.5652	2.8433	0.0048	-0.0005	768.868
0.0258	767.8193	+2	0.002417	31.0	30.0	29.67	29.648	0.0032	0.5616	2.8443	0.0048	-0.0005	771.233
0.0163	515.5416	-3	0.002952	30.0	30.0	29.84	29.663	0.0081	0.1842	0.7061	0.0010	0.0077	516.449
0.0164	517.1531	0	0.002873	30.0	30.0	29.65	29.663	0.0088	0.1789	0.7052	0.0010	0.0077	518.055

TABLE XI (Continued)

t_r / p_o	Run No. / Date	t_b(308) / t_b(307)	t_b(107) / t_b(310)	t_b(ave.) / Ave. dev.	t_s / t_{H_2}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(
150	303	150.0010	149.9924	149.9960	29.87	R	518.4543	1.300	1.880	0.1263	0.0249	0.0367	0.0164	51
333	11/9/36	149.9964	149.9940	0.0028	29.662	G	520.0800	1.392	1.858	0.0928	0.0271	0.0353	0.0164	51
200	304	200.0026	199.9986	199.9993	29.69	R	579.4257	1.185	1.841	0.1132	0.0227	0.0362	0.0170	57
333	11/10/36	199.9993	199.9968	0.0016	29.679	G	581.2135	1.251	1.910	0.1207	0.0249	0.0359	0.0171	57
400	305	399.9970	399.9949	399.9938	29.39	R	822.3800	1.196	1.911	0.1048	0.0226	0.0371	0.0267	81
333	11/11/36	399.9918	399.9915	0.0022	29.629	G	824.9048	1.216	1.912	0.1152	0.0234	0.0359	0.0267	82
356.58	306	356.5813		356.5798	29.20	R	769.7617	1.209	1.897	0.1095	0.0227	0.0370	0.0249	76
333	11/12/36	356.5783	356.5798	0.0010	29.640	G	772.1322	1.204	1.860	0.0907	0.0237	0.0353	0.0250	76
150	307	150.0020		149.9978	29.22	R	518.4557	1.265	1.908	0.1095	0.0243	0.0371	0.0158	51
333	11/14/36	149.9978	149.9936	0.0028	29.629	G	520.0640	1.366	1.844	0.1043	0.0267	0.0351	0.0158	51
		t_b(308) / t_b(307)	t_b(306) / t_b(310)											
150	308	150.0021		149.9984	29.19	R	518.4543	1.298	1.918	0.1125	0.0249	0.0372	0.0158	51
333	11/14/36	149.9987	149.9944	0.0027	29.626	G	520.0680	1.398	1.856	0.0918	0.0272	0.0353	0.0158	51
150	309	150.0020	149.9967	149.9976	28.84	R	934.3990	1.156	1.952	0.0883	0.0223	0.0376	0.0300	92
600	11/25/36	149.9956	149.9963	0.0022	29.542	G	935.4130	1.092	1.546	0.0865	0.0210	0.0310	0.0301	93
150	310	150.0012	149.9960	149.9965	28.84	R	934.4052	1.180	1.917	0.0945	0.0227	0.0372	0.0300	92
600	11/25/36	149.9945	149.9942	0.0024	29.574	G	934.3998	1.148	1.445	0.1017	0.0219	0.0294	0.0301	93
150	311	149.9990	149.9988	149.9979	29.20	R	934.4430	1.119	1.958	0.1053	0.0217	0.0377	0.0305	92
600	12/15/36	149.9962	149.9976	0.0010	29.643	G	935.3183	1.064	1.388	0.0882	0.0205	0.0285	0.0306	93
150	312	149.9990	149.9996	149.9982	29.20	R	934.4500	1.169	1.950	0.0912	0.0225	0.0376	0.0305	92
600	12/15/36	149.9962	149.9979	0.0011	29.644	G	935.3167	1.113	1.562	0.0777	0.0214	0.0312	0.0306	93
444.6	313			444.5974	29.37	R	1579.8742	1.096	1.923	0.1228	0.0216	0.0373	0.0568	157
600	12/16/36	444.6008	444.5940	0.0034	29.668	G	1581.3590	1.051	1.419	0.0945	0.0211	0.0290	0.0569	157
444.6	314			444.5964	29.37	R	1579.9135	1.159	1.907	0.0960	0.0226	0.0371	0.0568	157
600	12/16/36	444.5985	444.5942	0.0022	29.669	G	1581.3223	1.086	1.604	0.0818	0.0217	0.319	0.0569	157
150	315		150.0014	150.0016	29.15	R	934.4578	1.084	1.893	0.1257	0.0211	0.0369	0.0305	92
600	12/18/36	150.0000	150.0033	0.0012	29.598	G	935.3242	1.043	1.368	0.1085	0.0202	0.0282	0.0305	93
150	316		150.0026	150.0025	29.15	R	934.4688	1.163	1.795	0.1233	0.0224	0.0356	0.0305	92
600	12/18/36	149.9996	150.0054	0.0020	29.606	G	935.3353	1.144	1.378	0.1037	0.0219	0.0283	0.0305	93
444.6	317		444.5809	444.5883	30.07	R	1579.9007	1.140	1.923	0.0960	0.0223	0.0373	0.0585	157
600	12/19/36	444.5948	444.5891	0.0049	29.676	G	1581.3158	1.094	1.476	0.0960	0.0218	0.0299	0.0585	157
444.6	318		444.5848	444.5905	29.80	R	1579.9122	1.213	1.881	0.0945	0.0235	0.0368	0.0579	157
600	12/19/36	444.5953	444.5913	0.0038	29.681	G	1581.3180	1.166	1.693	0.0845	0.0231	0.0332	0.0579	157
150	319		149.9951	149.9993	29.67	R	934.4898	1.050	1.928	0.1147	0.0205	0.0373	0.0312	92
600	12/21/36	150.0000	150.0029	0.0028	29.673	G	935.3525	0.984	1.385	0.1135	0.0191	0.0284	0.0313	93
150	320		149.9980	150.0015	29.29	R	934.4867	1.186	1.934	0.0780	0.0228	0.0374	0.0307	92
600	12/21/36	150.0034	150.0032	0.0024	29.657	G	935.3388	1.157	1.540	0.0922	0.0221	0.0309	0.0307	93

TABLE XI (Continued)

δ_3	p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
0.0164	515.5397	-3	0.002951	30.0	30.0	29.82	29.650	0.0081	0.1880	0.7077	0.0010	0.0049	516.449
0.0164	517.1598	0	0.002872	30.0	30.0	29.56	29.650	0.0088	0.1806	0.7061	0.0010	0.0049	518.061
0.0170	576.1649	-4	0.002833	29.8	30.0	29.61	29.669	0.0069	0.2600	1.1164	0.0017	0.0009	577.551
0.0171	577.9452	0	0.002729	30.0	30.0	29.49	29.669	0.0075	0.2634	1.1199	0.0017	0.0009	579.339
0.0267	817.7666	+97	0.002510	30.0	30.0	29.35	29.608	0.0015	0.6671	3.4409	0.0058	0.0076	821.890
0.0267	820.2792	+99	0.002352	31.0	30.0	29.32	29.608	0.0019	0.6688	3.4480	0.0059	0.0076	824.411
0.0249	765.4411	-5	0.002566	30.0	30.0	29.12	29.629	0.0027	0.5647	2.8456	0.0048	0.0002	768.859
0.0250	767.8011	-5	0.002414	30.0	30.0	29.34	29.629	0.0032	0.5560	2.8400	0.0048	0.0002	771.205
0.0158	515.5426	-5	0.002956	29.3	30.0	29.19	29.614	0.0081	0.1859	0.7086	0.0010	0.0027	516.449
0.0158	517.1462	-2	0.002879	30.0	29.7	29.26	29.614	0.0088	0.1820	0.7077	0.0010	0.0027	518.048
0.0158	515.5420	0	0.002952	29.0	30.0	29.20	29.612	0.0081	0.1870	0.7088	0.0010	0.0020	516.449
0.0158	517.1508	+1	0.002876	30.0	30.0	29.15	29.612	0.0088	0.1803	0.7071	0.0010	0.0020	518.050
0.0300	929.1726	-2	0.002961	29.0	29.2	29.28	29.495	0.0148	0.3300	1.2773	0.0034	0.0053	930.803
0.0301	930.1863	-2	0.002902	30.0	29.0	28.95	29.495	0.0162	0.2992	1.2665	0.0034	0.0053	931.777
0.0300	929.1742	0	0.002952	29.0	29.0	29.05	29.529	0.0146	0.3299	1.2770	0.0034	0.0077	930.807
0.0301	930.1703	-1	0.002889	29.8	29.0	28.95	29.529	0.0160	0.2962	1.2640	0.0034	0.0077	931.758
0.0305	929.1992	-3	0.002946	30.0	30.0	29.35	29.625	0.0145	0.3357	1.2762	0.0034	0.0046	930.834
0.0306	930.0776	-2	0.002895	30.0	30.0	29.39	29.625	0.0161	0.2874	1.2580	0.0033	0.0046	931.647
0.0305	929.2069	-3	0.002943	30.0	30.0	29.46	29.629	0.0145	0.3307	1.2736	0.0034	0.0040	930.833
0.0306	930.0741	-1	0.002894	30.0	30.0	29.50	29.629	0.0161	0.2977	1.2616	0.0033	0.0040	931.657
0.0568	1571.0178	-4	0.002452	31.0	30.0	29.40	29.652	0.0002	1.3885	7.4145	0.0227	0.0057	1581.145
0.0569	1572.5021	-2	0.002317	31.0	30.0	29.55	29.652	0.0018	1.3054	7.3079	0.0224	0.0057	1581.145
0.0568	1571.0578	+2	0.002451	31.0	30.0	29.44	29.663	0.0002	1.3729	7.3915	0.0226	0.0079	1579.853
0.0569	1572.4630	0	0.002315	31.0	30.0	29.61	29.663	0.0018	1.3229	7.3301	0.0224	0.0079	1581.148
0.0305	929.2217	-2	0.002946	30.0	30.0	29.47	29.575	0.0145	0.3382	1.2774	0.0034	-0.0035	930.852
0.0305	930.0910	-2	0.002895	30.0	30.0	29.40	29.575	0.0161	0.2922	1.2604	0.0033	-0.0035	931.660
0.0305	929.2339	-3	0.002947	30.0	30.0	29.45	29.590	0.0145	0.3308	1.2745	0.0034	-0.0055	930.852
0.0305	930.1023	-1	0.002896	30.0	30.0	29.41	29.590	0.0161	0.2916	1.2601	0.0033	-0.0055	931.668
0.0585	1571.0443	-4	0.002451	31.0	31.0	30.20	29.663	0.0003	1.3741	7.3850	0.0225	0.0258	1579.852
0.0585	1572.4583	-1	0.002317	31.8	31.0	30.14	29.663	0.0018	1.3138	7.3119	0.0223	0.0258	1581.134
0.0579	1571.0554	-4	0.002452	31.0	30.2	29.88	29.680	0.0003	1.3687	7.3816	0.0225	0.0209	1579.849
0.0579	1572.4564	+2	0.002317	31.0	30.0	29.79	29.680	0.0019	1.3355	7.3454	0.0225	0.0209	1581.183
0.0312	929.2406	-3	0.002932	30.0	30.0	29.85	29.663	0.0144	0.3369	1.2736	0.0034	0.0015	930.870
0.0313	930.1060	-2	0.002873	30.5	30.0	29.89	29.663	0.0158	0.2951	1.2576	0.0033	0.0015	931.679
0.0307	929.2419	-4	0.002938	30.0	30.0	29.47	29.650	0.0144	0.3255	1.2710	0.0034	-0.0033	930.853
0.0307	930.0950	-1	0.002876	30.0	30.0	29.35	29.650	0.0158	0.3006	1.2618	0.0033	-0.0033	931.673

TABLE XI (Continued)

t_r / p_o	Run No. / Date	t_b(310) / t_b(312)	t_b(313) / t_b(314)	t_b(ave.) / Ave. dev.	t_s / t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
150	321	150.0044	150.0036	150.0040	28.67	R	934.5270	1.124	1.869	0.1012	0.0217	0.0366	0.0298	929.
600	2/18/37	150.0058	150.0021	0.0011	29.566	G	935.3937	1.152	1.464	0.0900	0.0220	0.0297	0.0299	930.
150	322	150.0044	150.0041	150.0040	28.70	R	934.5250	1.129	1.880	0.1050	0.0218	0.0367	0.0298	929.
600	2/18/37	150.0056	150.0019	0.0010	29.561	G	935.3832	1.114	1.355	0.1087	0.0214	0.0279	0.0299	930.
444.6	323	444.6049	444.6054	444.6055	28.94	R	1580.0220	1.199	1.950	0.0920	0.0233	0.0376	0.0558	1571.
600	2/19/37	444.6068	444.6048	0.0007	29.607	G	1581.4752	1.191	1.549	0.0765	0.0236	0.0310	0.0559	1572.
444.6	324	444.6050	444.6030	444.6039	29.09	R	1580.0462	1.194	1.917	0.1220	0.0232	0.0372	0.0562	1571.
600	2/20/37	444.6044	444.6032	0.0008	29.707	G	1581.5398	1.094	1.497	0.1078	0.0218	0.0303	0.0562	1572.
150	325	149.9997	149.9962	149.9972	29.27	R	934.5805	1.069	1.935	0.1120	0.0208	0.0374	0.0307	929.
600	2/25/37	150.0008	149.9921	0.0030	29.619	G	935.4783	0.987	1.374	0.1250	0.0192	0.0283	0.0307	930.
150	326	149.9997	149.9965	149.9973	29.24	R	934.5745	1.136	1.869	0.0878	0.0220	0.0366	0.0306	929.
600	2/25/37	150.0006	149.9924	0.0028	29.639	G	935.4527	1.182	1.691	0.1245	0.0225	0.0332	0.0307	930.
150	327	149.9996	150.0003	149.9998	29.27	R	934.6568	1.133	1.920	0.0977	0.0219	0.0372	0.0307	929.
600	3/3/37	150.0025	149.9966	0.0016	29.686	G	935.6078	1.242	1.374	0.0890	0.0235	0.0283	0.0307	930.
150	328	150.0002	150.0007	150.0004	29.40	R	934.6437	1.186	1.916	0.1222	0.0228	0.0372	0.0308	929.
600	3/3/37	150.0031	149.9975	0.0015	29.685	G	935.5920	1.256	1.500	0.1093	0.0237	0.0303	0.0309	930.
444.6	329	444.6055	444.6026	444.6020	29.42	R	1580.2203	1.144	1.920	0.1092	0.0224	0.0372	0.0570	1571.
600	3/4/37	444.6025	444.6025	0.0008	29.703	G	1581.7973	1.129	1.709	0.0973	0.0225	0.0334	0.0570	1572.
444.6	330	444.6011	444.6014	444.6014	29.32	R	1580.2007	1.183	1.850	0.1208	0.0231	0.0363	0.0567	1571.
600	3/4/37	444.6010	444.6020	0.0003	29.661	G	1581.7613	1.140	1.449	0.1115	0.0227	0.0295	0.0568	1572.
150	331	150.0017	150.0017	150.0016	28.65	R	934.6090	1.116	1.932	0.1077	0.0216	0.0374	0.0298	929.
600	3/6/37	150.0041	149.9988	0.0014	29.463	G	935.5323	1.096	1.692	0.1097	0.0211	0.0332	0.0298	930.
150	332	150.0014	150.0009	150.0011	28.69	R	934.6073	1.208	1.835	0.1073	0.0232	0.0362	0.0298	929.
600	3/6/37	150.0038	149.9982	0.0015	29.489	G	935.5378	1.255	1.691	0.1043	0.0237	0.0332	0.0299	930.
200	333	200.0031	200.0009	200.0015	28.97	R	1044.5988	1.206	1.900	0.1035	0.0233	0.0370	0.0349	1038.
600	3/8/37	199.9993	200.0028	0.0014	29.618	G	1045.6153	1.235	1.619	0.1198	0.0245	0.0321	0.0349	1039.
400	334	399.9982	400.0008	399.9999	29.20	R	1482.8522	1.100	1.918	0.0917	0.0218	0.0372	0.0538	1474.
600	3/9/37	400.0006	400.0001	0.0009	29.677	G	1484.2785	0.805	1.750	0.1110	0.0163	0.0340	0.0538	1475.
356.58	335	356.5714	356.5744	356.5727	29.29	R	1387.9153	1.030	1.897	0.1097	0.0205	0.0370	0.0507	1380.
600	3/9/37	356.5724	356.5725	0.0009	29.694	G	1389.2857	0.917	1.736	0.0962	0.0182	0.0338	0.0508	1381.
150	336	150.0020	150.0012	150.0016	29.15	R	934.6438	1.084	1.910	0.1042	0.0211	0.0371	0.0305	929.
600	3/11/37	150.0047	149.9983	0.0018	29.625	G	935.5700	1.210	1.502	0.1072	0.0229	0.0303	0.0305	930.
150	337	150.0026	150.0013	150.0016	29.17	R	934.6355	1.204	1.852	0.1250	0.0231	0.0364	0.0305	929.
600	3/11/37	150.0045	149.9980	0.0020	29.624	G	935.5715	1.260	1.618	0.1067	0.0237	0.0321	0.0306	930.
356.58	338	356.5803	356.5831	356.5815	29.17	R	1387.9135	1.104	1.940	0.0972	0.0218	0.0375	0.0504	1380.
600	3/12/37	356.5807	356.5819	0.0010	29.590	G	1389.2672	1.026	1.517	0.0865	0.0202	0.0306	0.0505	1381.
300	339	299.9934	299.9932	299.9930	29.19	R	1264.0202	1.041	1.914	0.0940	0.0204	0.0372	0.0437	1256.
600	3/12/37	299.9918	299.9937	0.0006	29.593	G	1265.2303	0.859	1.731	0.1010	0.0175	0.0337	0.0437	1258.

TABLE XI (Continued)

δ_3	p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
0298	929.2961	-1	0.002964	29.0	29.0	28.93	29.542	0.0148	0.3289	1.2781	0.0034	-0.0088	930.912
0299	930.1652	-1	0.002903	29.0	29.0	28.77	29.542	0.0162	0.2940	1.2647	0.0034	-0.0088	931.735
0298	929.2949	-2	0.002964	29.0	29.0	29.01	29.537	0.0148	0.3307	1.2786	0.0034	-0.0088	930.914
0299	930.1568	-1	0.002903	29.0	29.0	28.72	29.537	0.0162	0.2913	1.2638	0.0034	-0.0088	931.723
0558	1571.1825	-1	0.002458	30.0	30.0	28.91	29.579	0.0003	1.3752	7.4055	0.0227	-0.0121	1579.974
0559	1572.6345	-2	0.002286	31.2	30.0	29.08	29.579	0.0009	1.3130	7.3188	0.0224	-0.0121	1581.278
0562	1571.1789	+1	0.002453	30.0	30.0	29.03	29.726	0.0002	1.3881	7.4162	0.0227	-0.0086	1579.998
0562	1572.6695	0	0.002279	31.0	30.0	28.94	29.726	0.0007	1.3232	7.3280	0.0224	-0.0086	1581.335
0307	929.3396	-2	0.002956	29.3	30.0	29.31	29.616	0.0147	0.3365	1.2779	0.0034	0.0062	930.978
0307	930.2398	-2	0.002889	30.0	29.0	29.16	29.616	0.0160	0.2979	1.2632	0.0034	0.0062	931.826
0306	929.3321	0	0.002955	29.7	30.0	29.29	29.642	0.0146	0.3247	1.2727	0.0034	0.0059	930.953
0307	930.2094	-1	0.002888	30.0	29.5	29.15	29.642	0.0160	0.3220	1.2721	0.0034	0.0060	931.829
0307	929.4055	0	0.002946	30.0	29.7	29.21	29.682	0.0145	0.3312	1.2747	0.0034	0.0004	931.030
0307	930.3615	+1	0.002877	30.0	29.3	29.25	29.682	0.0159	0.2868	1.2569	0.0033	0.0004	931.925
0308	929.3936	-1	0.002945	30.0	30.0	29.29	29.696	0.0145	0.3387	1.2770	0.0034	-0.0009	931.026
0309	930.3444	+1	0.002877	30.0	29.7	29.22	29.696	0.0158	0.3032	1.2632	0.0033	-0.0009	931.929
0570	1571.3531	-1	0.002460	30.2	30.0	29.29	29.758	0.0004	1.3814	7.4060	0.0226	-0.0044	1580.159
0570	1572.9251	+2	0.002295	32.0	30.0	29.32	29.758	0.0011	1.3447	7.3564	0.0225	-0.0044	1581.645
0567	1571.3469	+1	0.002460	30.0	30.0	29.31	29.690	0.0004	1.3802	7.4060	0.0226	-0.0031	1580.153
0568	1572.9051	+2	0.002305	32.0	30.0	29.39	29.690	0.0014	1.3192	7.3249	0.0224	-0.0031	1581.570
0298	929.3941	+1	0.002950	29.0	29.0	28.70	29.422	0.0145	0.3352	1.2815	0.0034	-0.0035	931.025
0298	930.3159	+2	0.002882	29.0	29.0	28.39	29.422	0.0158	0.3176	1.2751	0.0034	-0.0035	931.924
0298	929.3908	+1	0.002950	29.0	29.0	28.74	29.445	0.0146	0.3287	1.2786	0.0034	-0.0024	931.014
0299	930.3196	+2	0.002882	29.0	29.0	28.52	29.445	0.0159	0.3158	1.2738	0.0034	-0.0024	931.926
0349	1038.7465	-1	0.002836	29.0	29.0	29.07	29.610	0.0125	0.4682	2.0174	0.0057	-0.0033	1041.247
0349	1039.7634	0	0.002743	30.0	29.0	29.00	29.610	0.0136	0.4495	2.0064	0.0056	-0.0033	1042.23
0538	1474.5371	+3	0.002512	30.0	30.0	29.23	29.684	0.0027	1.1845	6.1966	0.0189	0.0002	1481.940
0538	1475.9531	+5	0.002363	32.0	30.0	29.42	29.684	0.0036	1.1709	6.1797	0.0189	0.0002	1483.326
0507	1380.1266	+2	0.002569	30.0	30.0	29.34	29.707	0.0049	1.0161	5.1280	0.0155	0.0161	1386.307
0508	1381.4903	+3	0.002429	31.0	30.0	29.30	29.707	0.0059	0.9887	5.0997	0.0155	0.0161	1387.616
0305	929.4019	-2	0.002952	29.0	30.0	29.25	29.608	0.0146	0.3325	1.2764	0.0034	-0.0035	931.025
0305	930.3314	0	0.002883	30.0	29.2	29.14	29.608	0.0159	0.3026	1.2648	0.0034	-0.0035	931.915
0305	929.3965	-3	0.002955	29.0	30.0	29.29	29.612	0.0147	0.3353	1.2776	0.0034	-0.0035	931.024
0306	930.3322	0	0.002883	30.0	29.3	29.17	29.612	0.0156	0.3111	1.2680	0.0034	-0.0035	931.927
0504	1380.1513	0	0.002571	29.0	29.5	29.16	29.558	0.0050	1.0141	5.1324	0.0155	-0.0033	1386.315
0505	1381.5028	0	0.002430	30.0	29.0	28.93	29.558	0.0160	0.9599	5.0766	0.0154	-0.0033	1387.557
0437	1256.9455	-2	0.002652	30.0	30.0	29.26	29.571	0.0077	0.7958	3.8626	0.0115	0.0154	1261.638
0437	1258.1494	-2	0.002522	31.0	29.8	29.17	29.571	0.0087	0.7781	3.8472	0.0115	0.0154	1262.810

TABLE XI (Continued)

t_r p_o	Run No. Date	t_b(310) t_b(312)	t_b(313) t_b(314)	t_b(ave.) Ave. dev.	t_s t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(1
250	340	250.0060	250.0081	250.0073	29.35	R	1154.4350	1.065	1.931	0.0985	0.0207	0.0374	0.0403	1147.
600	3/13/37	250.0054	250.0098	0.0016	29.666	G	1155.5683	1.039	1.738	0.0803	0.0213	0.0338	0.0403	1149.
150	341	150.0015	149.9997	150.0006	29.27	R	934.6547	1.152	1.914	0.1017	0.0222	0.0372	0.0307	929.
600	3/15/37	150.0036	149.9975	0.0020	29.633	G	935.5757	1.189	1.740	0.1062	0.0226	0.0338	0.0307	930.
150	342	150.0009	149.9992	150.0000	29.27	R	934.6392	1.186	1.881	0.1027	0.0228	0.0368	0.0307	929.
600	3/15/37	150.0027	149.9970	0.0018	29.628	G	935.5675	1.246	1.751	0.1002	0.0235	0.0340	0.0307	930.
400	343	399.9968	399.9974	399.9984	29.45	R	1482.8807	1.140	1.886	0.0957	0.0225	0.0368	0.0543	1474.
600	3/16/37	399.9989	400.0005	0.0013	29.687	G	1484.3080	0.998	1.806	0.0762	0.0198	0.0347	0.0544	1475.
356.58	344	356.5767	356.5773	356.5777	29.30	R	1387.9693	1.016	1.878	0.0908	0.0203	0.0367	0.0507	1380.
600	3/16/37	356.5764	356.5803	0.0013	29.700	G	1389.2763	0.871	1.760	0.0880	0.0174	0.0341	0.0508	1381.
200	345	200.0028	199.9982	200.0005	29.27	R	1044.6156	1.110	1.734	0.1055	0.0216	0.0348	0.0354	1038.
600	3/17/37	199.9991	200.0019	0.0018	29.629	G	1045.6236	1.022	1.761	0.0942	0.0207	0.0341	0.0354	1039.
150	346	150.0044	150.0028	150.0036	28.99	R	934.6492	1.114	1.918	0.1135	0.0216	0.0372	0.0303	929.
600	3/18/37	150.0058	150.0016	0.0014	29.618	G	935.5662	1.176	1.706	0.1223	0.0224	0.0334	0.0303	930.
150	347	150.0037	150.0021	150.0028	28.95	R	934.6535	1.189	1.897	0.1072	0.0229	0.0370	0.0302	929.
600	3/18/37	149.9990	150.0065	0.0023	29.624	G	935.5785	1.220	1.754	0.0937	0.0231	0.0340	0.0302	930.
250	348	250.0065	250.0086	250.0083	29.10	R	1154.4360	1.156	1.924	0.1017	0.0222	0.0373	0.0398	1147.
600	3/19/37	250.0062	250.0118	0.0019	29.667	G	1155.5257	1.112	1.813	0.1223	0.0227	0.0348	0.0399	1149.
356.58	349	356.5778	356.5800	356.5792	29.17	R	1387.9257	1.020	1.916	0.1092	0.0203	0.0372	0.0504	1380.
600	3/20/37	356.5774	356.5816	0.0016	29.683	G	1389.2412	0.794	1.817	0.1010	0.0160	0.0348	0.0505	1381.
300	350	300.0000	299.9984	299.9988	29.22	R	1264.0647	1.012	1.913	0.0932	0.0199	0.0372	0.0438	1256.
600	3/20/37	299.9958	300.0008	0.0016	29.657	G	1265.2463	0.941	1.793	0.1025	0.0191	0.0345	0.0438	1258.
150	351	150.0021	149.9998	150.0008	29.02	R	934.6477	1.117	1.909	0.1017	0.0216	0.0371	0.0303	929.
600	3/22/37	150.0034	149.9978	0.0020	29.629	G	935.5578	1.134	1.804	0.1092	0.0217	0.0346	0.0303	930.
150	352	150.0008	149.9985	149.9995	29.19	R	934.6362	1.186	1.902	0.1147	0.0228	0.0370	0.0305	929.
600	3/22/37	149.9956	150.0031	0.0024	29.612	G	935.5522	1.221	1.806	0.1023	0.0231	0.0347	0.0306	930.
444.6	353	444.6033	444.6057	444.6042	29.60	R	1580.2860	1.109	1.914	0.0945	0.0218	0.0372	0.0574	1571.
600	3/23/37	444.6042	444.6037	0.0007	29.717	G	1581.7590	1.112	1.837	0.0940	0.0222	0.0350	0.0574	1572.
444.6	354	444.6010	444.6005	444.6002	29.40	R	1580.2468	1.204	1.924	0.1003	0.0234	0.0373	0.0569	1571.
600	3/23/37	444.5995	444.5999	0.0005	29.691	G	1581.7415	1.176	1.824	0.0927	0.0233	0.0349	0.0570	1572.
150	355	150.0023	150.0001	150.0009	29.40	R	934.6623	1.128	1.954	0.0893	0.0218	0.0376	0.0308	929.
600	3/25/37	150.0035	149.9978	0.0020	29.649	G	935.5652	1.184	1.330	0.0933	0.0225	0.0275	0.0309	930.
150	356	150.0018	150.0009	150.0011	29.29	R	934.6385	1.210	1.869	0.1352	0.0232	0.0366	0.0307	929.
600	3/25/37	149.9976	150.0041	0.0018	29.644	G	935.5480	1.233	1.607	0.1165	0.0233	0.0319	0.0307	930.
150	357	150.0043	149.9999	150.0012	27.70	R	699.5345	1.169	1.852	0.1003	0.0221	0.0364	0.0213	695.
450	4/1/37	150.0036	149.9972	0.0027	27.550	G	700.2402	1.239	1.538	0.1048	0.0249	0.0309	0.0214	696.
150	358	150.0019	149.9972	149.9985	27.72	R	699.5192	1.143	1.826	0.1313	0.0217	0.0360	0.0214	695.
450	4/1/37	150.0006	149.9944	0.0027	27.534	G	700.2278	1.232	1.587	1.1095	0.0247	0.0316	0.0214	696.

TABLE XI (Continued)

δ_3	p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
.0403	1147.9575	-2	0.002744	29.8	30.0	29.40	29.673	0.0102	0.6253	2.8784	0.0084	-0.0161	1151.464
.0403	1149.0886	-2	0.002629	30.3	30.0	29.26	29.673	0.0113	0.5990	2.8593	0.0083	-0.0161	1152.550
.0307	929.4126	-1	0.002946	29.8	30.0	29.42	29.602	0.0145	0.3320	1.2750	0.0034	-0.0013	931.036
.0307	930.3322	0	0.002873	30.0	29.7	29.19	29.602	0.0158	0.3198	1.2706	0.0034	-0.0013	931.940
.0307	929.3990	0	0.002945	29.0	30.0	29.32	29.606	0.0145	0.3303	1.2747	0.0034	0.0000	931.022
.0307	930.3256	+1	0.002875	30.0	29.0	29.06	29.606	0.0158	0.3188	1.2710	0.0034	0.0000	931.935
.0543	1474.5644	+3	0.002510	30.0	30.0	29.45	29.659	0.0027	1.1833	6.1936	0.0189	0.0035	1481.966
.0544	1475.9831	+2	0.002352	32.0	30.0	29.59	29.659	0.0035	1.1592	6.1634	0.0188	0.0035	1483.332
.0507	1380.1789	0	0.002564	30.0	30.0	29.35	29.713	0.0048	1.0051	5.1155	0.0155	0.0051	1386.325
.0508	1381.4783	0	0.002415	31.0	30.0	29.44	29.713	0.0057	0.9870	5.0950	0.0154	0.0051	1387.586
.0354	1038.7621	0	0.002831	30.0	30.0	29.33	29.600	0.0123	0.4564	2.0083	0.0056	-0.0011	1041.244
.0354	1039.7643	0	0.002735	30.0	30.0	29.33	29.600	0.0135	0.4520	2.0054	0.0056	-0.0011	1042.240
.0303	929.4086	-2	0.002947	29.0	29.3	29.26	29.595	0.0146	0.3360	1.2779	0.0034	-0.0079	931.033
.0303	930.3251	0	0.002879	30.0	29.0	29.20	29.595	0.0159	0.3225	1.2725	0.0034	-0.0079	931.932
.0302	929.4133	-1	0.002947	29.0	29.7	29.20	29.604	0.0146	0.3327	1.2765	0.0034	-0.0062	931.034
.0302	930.3363	+1	0.002879	30.0	29.0	29.22	29.604	0.0159	0.3170	1.2701	0.0034	-0.0062	931.936
.0398	1147.9594	-2	0.002735	30.0	30.0	29.28	29.637	0.0100	0.6260	2.8790	0.0084	-0.0183	1151.464
.0399	1149.0461	+1	0.002621	31.0	30.0	29.47	29.637	0.0111	0.6218	2.8743	0.0084	-0.0183	1152.543
.0504	1380.1390	+2	0.002569	30.0	30.0	29.15	29.678	0.0049	1.0177	5.1318	0.0155	0.0018	1386.311
.0505	1381.4453	+2	0.002424	31.0	30.0	29.32	29.678	0.0058	0.9990	5.1106	0.0155	0.0018	1387.578
.0438	1256.9748	0	0.002653	30.0	30.0	29.34	29.644	0.0077	0.7956	3.8607	0.0115	0.0026	1261.653
.0438	1258.1517	+1	0.002518	31.0	30.0	29.49	29.644	0.0087	0.7848	3.8491	0.0115	0.0026	1262.808
.0303	929.4054	0	0.002952	29.5	29.8	29.32	29.600	0.0146	0.3318	1.2759	0.0034	-0.0018	931.029
.0303	930.3130	+1	0.002880	30.0	29.0	29.29	29.600	0.0159	0.3252	1.2732	0.0034	-0.0018	931.929
.0305	929.3983	-1	0.002948	29.3	29.7	29.37	29.588	0.0146	0.3354	1.2771	0.0034	0.0011	931.030
.0306	930.3119	0	0.002877	30.0	29.3	29.22	29.588	0.0158	0.3231	1.2724	0.0034	0.0011	931.928
.0574	1571.4143	-2	0.002458	30.3	30.0	29.64	29.739	0.0005	1.3728	7.3913	0.0226	-0.0093	1580.192
.0574	1572.8815	+1	0.002295	32.0	30.0	29.79	29.739	0.0013	1.3575	7.3707	0.0226	-0.0093	1581.624
.0569	1571.3837	-1	0.002458	30.0	30.0	29.44	29.718	0.0004	1.3771	7.3996	0.0226	-0.0004	1580.183
.0570	1572.8723	+2	0.002297	32.0	30.0	29.63	29.718	0.0012	1.3555	7.3700	0.0226	-0.0004	1581.621
0308	929.4167	-1	0.002948	30.0	30.0	29.55	29.625	0.0146	0.3306	1.2739	0.0034	-0.0020	931.037
0309	930.3254	+1	0.002877	30.0	30.0	29.53	29.625	0.0159	0.2846	1.2555	0.0033	-0.0020	931.883
0307	929.3962	-1	0.002947	29.5	30.0	29.39	29.629	0.0145	0.3398	1.2781	0.0034	-0.0024	931.030
0307	930.3054	+1	0.002876	30.0	29.7	29.21	29.629	0.0158	0.3135	1.2679	0.0034	-0.0024	931.904
0213	695.8688	-1	0.002953	28.0	28.0	27.74	27.546	0.0108	0.2457	0.9747	0.0020	-0.0020	697.100
0214	696.5791	-2	0.002876	28.2	28.0	27.46	27.546	0.0116	0.2284	0.9682	0.0019	-0.0020	697.787
0214	695.8557	-1	0.002952	28.0	28.0	27.81	27.532	0.0108	0.2518	0.9771	0.0020	0.0025	697.100
0214	696.5679	-2	0.002877	29.0	28.0	27.64	27.532	0.0116	0.2323	0.9693	0.0019	0.0025	697.786

TABLE XI (Continued)

t_r / p_o	Run No. / Date	$t_b(310)$ / $t_b(312)$	$t_b(313)$ / $t_b(314)$	t_b(ave.) / Ave. dev.	t_s / t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(19)	(11)	(12)	(13)	(14)
444.6	359	444.6048	444.6039	444.6027	28.12	R	1182.5448	1.142	1.844	0.1123	0.0219	0.0363	0.0397
450	4/2/37	444.5985	444.6036	0.0021	27.567	G	1183.7410	1.095	1.322	0.1092	0.0222	0.0274	0.0397
444.6	360	444.6014	444.5972	444.5981	28.05	R	1182.5627	1.144	1.837	0.1012	0.0220	0.0362	0.0395
450	4/2/37	444.5942	444.5995	0.0024	27.567	G	1183.7453	1.101	1.340	0.1023	0.0223	0.0277	0.0396
150	361	150.0017	149.9982	149.9992	27.57	R	699.5315	1.157	1.738	0.0992	0.0219	0.0348	0.0212
450	4/5/37	150.0017	149.9952	0.0025	27.503	G	700.2207	1.235	1.271	0.1167	0.0248	0.0265	0.0212
150	362	150.0012	149.9978	149.9989	27.70	R	699.5257	1.154	1.880	0.1100	0.0219	0.0367	0.0213
450	4/5/37	150.0013	149.9953	0.0024	27.532	G	700.2233	1.221	1.657	0.0938	0.0246	0.0327	0.0214
444.6	363	444.6006	444.6006	444.5992	28.30	R	1182.5962	1.067	1.809	0.0917	0.0207	0.0358	0.0400
450	4/6/37	444.5966	444.5990	0.0014	27.655	G	1183.7553	1.021	1.418	0.0853	0.0209	0.0290	0.0401
444.6	364	444.5991	444.5972	444.5975	28.25	R	1182.5718	1.191	1.895	0.0982	0.0228	0.0369	0.0399
450	4/6/37	444.5957	444.5980	0.0010	27.658	G	1183.7420	1.182	1.576	0.0907	0.0238	0.0314	0.0400
150	365	150.0017	149.9973	149.9990	27.65	R	699.5440	1.113	1.843	0.0918	0.0212	0.0363	0.0213
450	4/8/37	150.0015	149.9955	0.0026	27.563	G	700.2217	1.122	1.448	0.1053	0.0228	0.0295	0.0213
150	366	150.0011	149.9970	149.9988	27.69	R	699.5393	1.210	1.843	0.0925	0.0228	0.0363	0.0213
450	4/8/37	150.0011	149.9958	0.0024	27.574	G	700.2230	1.254	1.675	0.0988	0.0251	0.0329	0.0214
400	367	400.0022	399.9997	400.0011	27.54	R	1109.6808	1.139	1.893	0.1018	0.0220	0.0369	0.0347
450	4/9/37	400.0020	400.0004	0.0010	27.472	G	1110.7577	1.066	1.587	0.0868	0.0221	0.0316	0.0348
356.58	368	356.5758	356.5765	356.5772	27.60	R	1038.6837	1.080	1.880	0.0947	0.0211	0.0367	0.0326
450	4/9/37	356.5771	356.5793	0.0011	27.503	G	1039.6635	0.990	1.596	0.1038	0.0201	0.0317	0.0326
200	369	200.0036	200.0009	200.0021	27.79	R	781.8350	0.997	1.883	0.0950	0.0192	0.0368	0.0236
450	4/10/37	200.0016	200.0024	0.0009	27.637	G	782.5972	1.082	1.727	0.0882	0.0215	0.0337	0.0236
150	370	150.0012	149.9964	149.9985	28.02	R	699.5582	1.185	1.838	0.0982	0.0224	0.0362	0.0217
450	4/12/37	150.0011	149.9952	0.0027	27.702	G	700.2303	1.217	1.470	0.1155	0.0245	0.0298	0.0217
150	371	150.0014	149.9969	149.9988	27.84	R	699.5462	1.209	1.776	0.0977	0.0227	0.0354	0.0215
450	4/12/37	150.0012	149.9959	0.0024	27.654	G	700.2265	1.279	1.666	0.0973	0.0255	0.0328	0.0215
356.58	372	356.5825	356.5852	356.5840	28.60	R	1038.7258	1.126	1.823	0.1107	0.0219	0.0360	0.0341
450	4/13/37	356.5817	356.5868	0.0020	27.743	G	1039.7240	1.090	1.540	0.1023	0.0219	0.0309	0.0342
300	373	299.9949	299.9939	299.9948	28.50	R	946.0220	1.091	1.890	0.1087	0.0212	0.0369	0.0302
450	4/13/37	299.9929	299.9974	0.0014	27.755	G	946.9462	1.086	1.498	0.0940	0.0210	0.0303	0.0302
250	374	250.0098	250.0102	250.0104	28.45	R	863.9970	1.050	1.912	0.1200	0.0203	0.0371	0.0267
450	4/14/37	250.0080	250.0136	0.0016	27.757	G	864.8380	1.061	1.563	0.0993	0.0205	0.0312	0.0267
150	375	150.0026	149.9961	149.9982	28.17	R	699.5542	1.104	1.898	0.1132	0.0211	0.0370	0.0218
450	4/15/37	150.0003	149.9940	0.0032	27.728	G	700.2357	1.147	1.654	0.1027	0.0232	0.0326	0.0219
150	376	150.0020	149.9960	149.9981	28.57	R	699.5642	1.165	1.846	0.1155	0.0220	0.0363	0.0222
450	4/15/37	150.0004	149.9941	0.0031	27.782	G	700.2387	1.217	1.695	0.1033	0.0245	0.0332	0.0223
200	377	200.0029	200.0006	200.0019	27.60	R	781.8157	1.086	1.780	0.1093	0.0208	0.0354	0.0234
450	4/16/37	200.0012	200.0028	0.0010	27.579	G	782.5717	1.109	1.722	0.0817	0.0220	0.0336	0.0234

TABLE XI (Continued)

p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	ϵ	δ_5	δ_6	δ_7	δ_8	p
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
1176.3577	-5	0.002457	29.0	29.0	28.09	27.577	-0.0001	1.0302	5.5950	0.0130	-0.0045	1182.991
1177.5568	-5	0.002269	31.0	28.7	27.87	27.577	0.0000	0.9746	5.5191	0.0128	-0.0045	1184.059
1176.3755	-2	0.002458	28.0	28.2	27.97	27.577	0.0000	1.0253	5.5904	0.0130	0.0031	1183.007
1177.5608	0	0.002288	29.2	28.0	27.84	27.577	0.0005	0.9741	5.5223	0.0128	0.0031	1184.074
695.8730	-1	0.002962	28.0	28.0	27.69	27.490	0.0109	0.2395	0.9733	0.0020	0.0013	697.100
696.5697	0	0.002893	28.0	28.0	27.60	27.490	0.0118	0.2153	0.9638	0.0019	0.0013	697.764
695.8618	0	0.002960	28.0	28.0	27.70	27.523	0.0108	0.2494	0.9769	0.0020	0.0018	697.103
696.5625	-1	0.002890	28.0	28.0	27.65	27.523	0.0118	0.2325	0.9703	0.0020	0.0018	697.781
1176.3897	-2	0.002458	28.8	29.0	28.24	27.703	0.0000	1.0191	5.5758	0.0129	0.0013	1182.999
1177.5498	0	0.002290	30.0	28.5	27.95	27.703	0.0005	0.9753	5.5197	0.0128	0.0013	1184.059
1176.3657	-1	0.002460	28.3	28.2	28.09	27.713	0.0001	1.0290	5.5917	0.0130	0.0041	1183.004
1177.5363	-1	0.002292	30.0	28.0	27.80	27.713	0.0005	0.9928	5.5455	0.0129	0.0041	1184.092
695.8758	0	0.002960	28.0	28.0	27.77	27.573	0.0108	0.2432	0.9739	0.0020	0.0016	697.107
696.5583	0	0.002891	29.0	28.0	27.74	27.573	0.0118	0.2234	0.9658	0.0019	0.0017	697.763
695.8713	0	0.002959	28.0	28.0	27.74	27.590	0.0108	0.2325	0.9738	0.0020	0.0020	697.103
696.5572	+1	0.002890	28.7	28.0	27.68	27.590	0.0118	0.2347	0.9704	0.0020	0.0020	697.778
1103.8900	-2	0.002517	28.0	28.0	27.49	27.452	0.0018	0.8895	4.6990	0.0109	-0.0018	1109.489
1104.9668	-2	0.002361	29.0	28.0	27.27	27.452	0.0024	0.8540	4.6578	0.0108	-0.0018	1110.490
1033.2561	-1	0.002572	28.0	28.0	27.58	27.490	0.0034	0.7550	3.8821	0.0089	0.0046	1037.910
1034.2347	0	0.002426	29.0	28.0	27.34	27.490	0.0041	0.7323	3.8592	0.0089	0.0046	1038.844
777.7239	+1	0.002841	28.0	28.0	27.86	27.653	0.0092	0.3480	1.5322	0.0033	-0.0035	779.613
778.4875	+1	0.002747	29.0	28.0	27.58	27.653	0.0100	0.3355	1.5257	0.0032	-0.0035	780.358
695.8741	0	0.002959	28.0	28.0	27.98	27.709	0.0109	0.2445	0.9727	0.0020	0.0025	697.107
696.5511	-1	0.002892	28.3	28.0	27.63	27.709	0.0118	0.2270	0.9666	0.0019	0.0025	697.761
695.8691	0	0.002959	28.0	28.0	27.84	27.666	0.0109	0.2412	0.9721	0.0020	0.0020	697.097
696.5512	0	0.002892	28.0	28.0	27.60	27.666	0.0118	0.2338	0.9698	0.0019	0.0020	697.770
1033.2560	0	0.002571	29.0	29.0	28.61	27.783	0.0035	0.7566	3.8717	0.0089	-0.0066	1037.890
1034.2541	+1	0.002428	31.0	29.0	28.67	27.783	0.0042	0.7273	3.8408	0.0088	-0.0066	1038.829
941.0347	-1	0.002653	29.0	29.0	28.48	27.795	0.0056	0.6000	2.9242	0.0066	0.0086	944.580
941.9604	+1	0.002527	30.0	29.0	28.45	27.795	0.0064	0.5640	2.8929	0.0065	0.0086	945.439
859.4385	-1	0.002744	29.0	29.0	28.40	27.787	0.0074	0.4742	2.1855	0.0048	-0.0171	862.093
860.2811	+1	0.002632	30.0	29.0	28.43	27.787	0.0083	0.4431	2.1628	0.0048	-0.0172	862.883
695.8648	0	0.002954	28.0	28.0	28.09	27.738	0.0108	0.2511	0.9746	0.0020	0.0030	697.106
696.5493	-1	0.002888	29.0	28.0	27.98	27.738	0.0118	0.2344	0.9683	0.0019	0.0030	697.769
695.8700	-1	0.002955	28.0	28.5	28.37	27.810	0.0109	0.2490	0.9724	0.0020	0.0031	697.107
696.5466	-2	0.002888	29.0	28.0	28.04	27.810	0.0118	0.2367	0.9686	0.0019	0.0031	697.769
777.7157	-2	0.002845	27.8	28.0	27.55	27.564	0.0092	0.3459	1.5332	0.0033	-0.0031	779.604
778.4707	0	0.002756	28.0	28.0	27.36	27.564	0.0101	0.3334	1.5268	0.0032	-0.0031	780.341

TABLE XI (Continued)

t_r / p_o	Run No. / Date	t_h(310) / t_b(312)	t_b(313) / t_b(314)	t_b(ave.) / Ave. dev.	t_s / t_{Hg}	Bulb	H	h_1	h_2	h_3	δ_1	δ_2	δ_3	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(1
400	378	399.9986	399.9996	399.9999	28.22	R	1109.7148	1.171	1.870	0.1003	0.0225	0.0366	0.0359	1103.
450	4/17/37	400.0012	400.0003	0.0008	27.661	G	1110.7662	1.105	1.509	0.0878	0.0228	0.0304	0.0359	1104.
356.58	379	356.5750	356.5732	356.5737	28.05	R	1038.6738	1.130	1.883	0.1088	0.0220	0.0368	0.0333	1033.
450	4/17/37	356.5735	356.5732	0.0006	27.630	G	1039.6580	1.096	1.552	0.0917	0.0220	0.0311	0.0333	1034.
150	380	150.0024	149.9972	149.9995	28.20	R	699.5807	1.200	1.782	0.1117	0.0153	0.0354	0.0219	695.
450	4/19/37	150.0021	149.9962	0.0028	27.765	G	700.2358	1.222	1.596	0.1017	0.0166	0.0317	0.0219	696.
150	381	150.0012	149.9954	149.9980	27.94	R	699.5603	1.784	1.779	0.0945	0.0206	0.0354	0.0216	695.
450	4/19/37	149.9932	150.0023	0.0037	27.719	G	700.2145	1.402	1.600	0.0992	0.0186	0.0318	0.0216	696.
250	382	250.0026	250.0014	250.0024	28.35	R	863.9833	1.337	1.824	0.1130	0.0169	0.0360	0.0266	859.
450	4/20/37	250.0002	250.0053	0.0016	27.742	G	864.7995	1.180	1.706	0.1027	0.0152	0.0334	0.0266	860.
356.58	383	356.5753	356.5750	356.5752	27.74	R	1038.6555	1.496	1.870	0.1158	0.0186	0.0366	0.0328	1033.
450	4/21/37	356.5731	356.5774	0.0012	27.564	G	1039.6262	1.304	1.784	0.0990	0.0173	0.0344	0.0328	1034.
300	384	299.9966	299.9959	299.9967	27.62	R	945.9532	1.637	1.844	0.1280	0.0198	0.0363	0.0289	941.
450	4/22/37	299.9950	299.9993	0.0013	27.531	G	946.8413	1.134	1.781	0.1132	0.0147	0.0344	0.0289	941.
150	385	149.9995	149.9936	149.9962	27.60	R	699.5387	1.773	1.846	0.1112	0.0205	0.0363	0.0212	695.
450	4/23/37	149.9991	149.9926	0.0031	27.565	G	700.1938	1.530	1.530	0.0922	0.0199	0.0308	0.0213	696.
150	386	150.0005	149.9940	149.9969	27.70	R	699.5367	1.845	1.840	0.0957	0.0210	0.0362	0.0213	695.
450	4/23/37	149.9999	149.9932	0.0033	27.577	G	700.1950	1.742	1.695	0.0900	0.0217	0.0332	0.0214	696.
444.6	387	444.6056	444.6048	444.6050	27.94	R	1182.5560	1.496	1.727	0.1128	0.0185	0.0347	0.0394	1176.
450	4/24/37	444.6060	444.6038	0.0008	27.634	G	1183.6563	1.021	1.502	0.1030	0.0143	0.0303	0.0394	1177.
444.6	388	444.6065	444.6044	444.6048	28.23	R	1182.5883	1.616	1.652	0.1137	0.0195	0.0336	0.0399	1176.
450	4/24/37	444.6031	444.6050	0.0010	27.652	G	1183.6742	1.095	1.572	0.1098	0.0152	0.0314	0.0399	1177.
150	389	150.0010	149.9944	149.9977	27.74	R	699.5482	2.378	1.666	0.1092	0.0235	0.0338	0.0214	695.
450	4/26/37	150.0008	149.9945	0.0032	27.677	G	700.2010	1.679	1.257	0.1140	0.0212	0.0262	0.0214	696.
150	390	150.0008	149.9949	149.9977	28.12	R	699.5367	2.172	1.664	0.1112	0.0228	0.0338	0.0218	695.
450	4/26/37	150.0005	149.9946	0.0030	27.614	G	700.1878	1.717	1.619	0.1008	0.0215	0.0321	0.0218	696.
444.6	391	444.6033	444.6057	444.6033	28.20	R	1182.5523	1.557	1.825	0.1140	0.0190	0.0360	0.0398	1176.
450	4/27/37	444.6039	444.6004	0.0015	27.667	G	1183.6347	1.066	1.739	0.1132	0.0148	0.0338	0.0399	1177.
444.6	392	444.5995	444.6011	444.6002	28.17	R	1182.5550	1.410	1.748	0.1153	0.0177	0.0350	0.0398	1176.
450	4/27/37	444.6017	444.5986	0.0012	27.659	G	1183.6305	1.145	1.563	0.1067	0.0158	0.0312	0.0398	1177.
150	393	149.9995	149.9929	149.9959	28.12	R	699.5365	2.233	1.692	0.0993	0.0230	0.0342	0.0218	695.
450	4/29/37	149.9986	149.9927	0.0031	27.655	G	700.1823	1.681	1.275	0.0982	0.0212	0.0266	0.0218	696.
150	394	150.0007	149.9937	149.9968	27.97	R	699.5317	2.396	1.761	0.1115	0.0236	0.0352	0.0216	695.
450	4/29/37	149.9994	149.9935	0.0032	27.633	G	700.1723	1.688	1.593	0.1080	0.0213	0.0317	0.0217	696.

TABLE XI (Concluded)

δ_3	p'	$p'-p_e$	$\frac{1}{T_1}$	t_2	t_3	t_4	t_5	δ_4	δ_5	δ_6	δ_7	δ_8	p
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
0.0359	1103.8881	-2	0.002512	28.0	28.0	27.99	27.700	0.0018	0.8872	4.6873	0.0108	0.0002	1109.475
0.0359	1104.9404	+1	0.002357	29.0	28.0	27.58	27.700	0.0024	0.8476	4.6422	0.0107	0.0002	1110.444
0.0333	1033.2240	-2	0.002570	28.0	28.0	27.84	27.664	0.0035	0.7601	3.8830	0.0089	0.0104	1037.890
0.0333	1034.2087	0	0.002423	29.0	28.0	27.56	27.664	0.0041	0.7244	3.8459	0.0088	0.0104	1038.802
0.0219	695.8825	0	0.002955	28.0	28.0	28.01	27.772	0.0108	0.2449	0.0721	0.0020	0.0008	697.113
0.0219	696.5391	0	0.002890	28.0	28.0	27.57	27.772	0.0118	0.2310	0.9678	0.0019	0.0008	697.752
0.0216	695.8729	-1	0.002956	28.0	28.0	27.79	27.728	0.0108	0.2406	0.9713	0.0019	0.0033	697.101
0.0216	696.5253	0	0.002890	28.0	28.0	27.48	27.728	0.0118	0.2307	0.9682	0.0019	0.0033	697.741
0.0266	859.4248	0	0.002740	28.0	28.5	28.21	27.751	0.0074	0.4668	2.1813	0.0048	-0.0040	862.081
0.0266	860.2376	+1	0.002630	29.2	28.2	28.07	27.751	0.0083	0.4537	2.1726	0.0048	-0.0040	862.873
0.0328	1033.2144	-1	0.002571	28.0	28.0	27.67	27.543	0.0034	0.7617	3.8878	0.0089	0.0079	1037.884
0.0328	1034.1809	-1	0.002429	28.8	28.0	27.50	27.543	0.0042	0.7455	3.8722	0.0089	0.0079	1038.820
0.0289	941.0023	-1	0.002654	28.0	28.0	27.55	27.483	0.0055	0.6031	2.9369	0.0066	0.0054	944.560
0.0289	941.8826	0	0.002530	28.5	28.0	27.35	27.483	0.0064	0.5908	2.9276	0.0066	0.0054	945.419
0.0212	695.8695	0	0.002955	28.0	28.0	27.57	27.543	0.0108	0.2480	0.9762	0.0020	0.0063	697.113
0.0213	696.5261	-2	0.002890	28.0	28.0	27.31	27.543	0.0118	0.2249	0.9678	0.0019	0.0063	697.739
0.0213	695.8666	-1	0.002957	28.0	28.0	27.66	27.562	0.0108	0.2440	0.9743	0.0020	0.0051	697.103
0.0214	696.5253	-2	0.002891	28.3	28.0	27.47	27.562	0.0118	0.2336	0.9708	0.0020	0.0051	697.749
0.0394	1176.3525	0	0.002459	28.0	28.0	27.86	27.647	0.0001	1.0205	5.5832	0.0130	-0.0082	1182.961
0.0394	1177.4472	+1	0.002289	29.5	28.0	27.61	27.647	0.0005	0.9906	5.5446	0.0129	-0.0083	1183.988
0.0399	1176.3834	0	0.002459	28.2	28.5	28.05	27.680	0.0001	1.0140	5.5716	0.0129	-0.0079	1182.974
0.0399	1177.4615	0	0.002291	30.0	28.2	27.80	27.680	0.0005	1.0000	5.5557	0.0129	-0.0079	1184.023
0.0214	695.8705	-2	0.002954	27.8	28.0	27.72	27.674	0.0108	0.2380	0.9708	0.0019	0.0038	697.096
0.0214	696.5251	-1	0.002892	28.0	28.0	27.46	27.674	0.0118	0.2138	0.9619	0.0019	0.0038	697.718
0.0218	695.8667	-1	0.002954	28.0	28.0	27.99	27.615	0.0108	0.2384	0.9707	0.0019	0.0038	697.092
0.0218	696.5147	0	0.002889	28.0	28.0	27.56	27.615	0.0118	0.2321	0.9694	0.0019	0.0038	697.734
0.0398	1176.3414	0	0.002458	28.2	28.3	28.02	27.685	0.0000	1.0296	5.5932	0.0130	-0.0054	1182.972
0.0399	1177.4162	+1	0.002289	30.0	28.2	27.78	27.685	0.0005	1.0168	5.5784	0.0130	-0.0054	1184.020
0.0398	1176.3455	0	0.002458	28.0	28.0	27.95	27.692	0.0001	1.0234	5.5853	0.0130	-0.0003	1182.967
0.0398	1177.4172	+1	0.002288	30.0	28.0	27.68	27.692	0.0004	0.9980	5.5528	0.0129	-0.0003	1183.981
0.0218	695.8611	-1	0.002956	28.0	28.0	28.00	27.657	0.0108	0.2371	0.9699	0.0019	0.0068	697.088
0.0218	696.5093	0	0.002891	28.3	28.0	27.57	27.657	0.0118	0.2112	0.9606	0.0019	0.0068	697.702
0.0216	695.8585	-1	0.002954	28.0	28.0	27.91	27.634	0.0108	0.2437	0.9728	0.0020	0.0053	697.093
0.0217	696.4970	-1	0.002890	28.0	28.0	27.49	27.634	0.0118	0.2323	0.9696	0.0019	0.0053	697.718

TABLE XII

Spread of the Values of Certain Observed Quantities During the Series of Measurements

See Table XI. A = runs made in the oil thermostat: B = runs made in the nitrate thermostat.

p_0, mm. Hg	$t_r - t_b$ °C.	t_a °C.	t_{Hg} °C.	h_1 mm.	h_2 mm.	h_3 mm.
1000 A	-0.005 to +0.010	25.2 to 26.1	25.48 to 25.67	0.90 to 1.26	1.45 to 1.98	0.043 to 0.142
750 A	- .004 .004	25.3 27.0	25.40 25.71	1.02 1.31	1.23 1.92	.050 .152
600 A	- .009 .007	29.1 31.0	29.64 29.91	1.06 1.29	1.46 1.92	.060 .142
600 B	- .008 .012	28.6 30.1	29.46 29.72	0.80 1.26	1.33 1.96	.076 .135
450 A	- .007 .005	26.9 29.8	27.55 27.93	1.07 1.31	1.23 1.90	.054 .152
450 B	- .010 .006	27.5 28.6	27.47 27.78	0.99 1.84[a]	1.26 1.91	.082 .131
333 A	- .003 .002	29.3 30.9	29.69 29.88	1.13 1.44	1.64 1.93	.039 .139
333 B	- .040 .010	28.8 31.1	29.60 29.91	1.05 1.40	1.34 1.95	.066 .143

p_0, mm. Hg	$p' - p_e$ mm. Hg	t_2 °C.	t_3 °C.	t_4 °C.	t_5 °C.
1000 A	-6 to +10	25.0 to 32.0	25.0 to 27.5	25.0 to 26.2	25.44 to 25.68
750 A	-5[b] 3	25.0 37.0	25.0 32.0	25.2 26.9	25.37 25.75
600 A	-6 3	28.5 35.3	29.0 32.8	28.8 31.1	29.60 29.93
600 B	-4 5	29.0 32.0	29.0 31.0	28.4 30.2	29.42 29.76
450 A	-4 2	26.0 34.0	27.0 31.3	26.9 29.7	27.53 27.96
450 B	-5 1	27.8 31.0	28.0 29.0	27.3 28.7	27.45 27.81
333 A	-4 3	29.0 32.0	29.0 32.5	29.0 30.8	29.68 29.88
333 B	-12 4[c]	29.0 35.0	29.0 31.7	28.6 31.2	29.58 29.94

During the calibration of V_5 average h_2 was 1.55 mm. (spread 1.32 to 1.73); average h_3 was 0.095 mm. (spread 0.071 to 0.107).

[a]Over 2 mm. for Runs 389R, 390R, 393R, 394R. [b]About-100 mm. for Runs 160 and 161. [c]About + 100 mm. for Run 305.

TABLE XIII

Values of the Individual Correction Terms for an Ice-Point Pressure of Approximately 600 Millimeters of Mercury

See Tables VI to IX and Table XI.

Correction	b	$i (i = 1,2,3,4,5)$	
δ_4	$3.3045 \times 10^{-5} \frac{p' V_b l_b}{V T_b}$	$3.3045 \times 10^{-5} \frac{p' V_b l_i}{V T_i}$	
δ_5	$\frac{p'}{V}(V_b - V_{bn})$	$\frac{p'}{V}(V_i - V_{in})$	($i = 1$ missing)
δ_6		$\frac{p'}{V} V_i \left(\frac{T_b}{T_i} - 1\right)$	(for $i = 1$ use V_1)
$\delta_{7.1}$	$\frac{p'^2}{RV} B_r \left(\frac{V_b - V}{T_r}\right)$	$\frac{p'^2}{RV} B_r \frac{2V_i}{T_i}$	(for $i = 1$ use V_1)
$\delta_{7.2}$		$-\frac{p'^2}{RV} T_r \frac{B_i V_i}{T_i^2}$	(for $i = 1$ use V_1)

Corr. / Space	b	1	2	3	4	5	Total
Correction in standard millimeters of mercury							
Run 200 Red at 0° C.							
δ_4	+0.01663	+0.03281	+0.01026	+0.01392	-0.03139	-0.01605	+0.0262
δ_5	+ .00030		+ .00001	+ .00001	+ .00005	+ .07316	+ .0735
δ_6		- .00609	- .00359	- .00692	- .04519	- .13919	- .2010
$\delta_{7.1}$	+ .00075	- .00008	- .00002	- .00005	- .00031	- .00094	
$\delta_{7.2}$		+ .00003	.00000	+ .00001	+ .00006	+ .00018	
δ_7	+ .00075	- .00005	- .00002	- .00004	- .00025	- .00076	- .0004
Run 202 Red at 202 Red at 100° C.							
δ_4	+0.01662	+0.03813	+0.01372	+0.01879	-0.04292	-0.02192	+0.0224
δ_5	+ .12298		+ .00002	+ .00002	+ .00007	+ .08929	+ .2124
δ_6		+ .01709	+ .01072	+ .02175	+ .14841	+ .44830	+ .6463
$\delta_{7.1}$	- .00058	+ .00008	+ .00003	+ .00005	+ .00034	+ .00104	
$\delta_{7.2}$		- .00001	+ .00001	+ .00002	+ .00015	+ .00045	
δ_7	- .00058	+ .00007	+ .00004	+ .00007	+ .00049	+ .00149	+ .0016
Run 323 Red at 444.6° C.							
δ_4	+0.01660	+0.06087	+0.02682	+0.03638	-0.09831	-0.04209	+0.0003
δ_5	+1.19432		+ .00002	+ .00002	+0.00011	+0.18075	+1.3752
δ_6		+ .24154	+ .13418	+ .25857	+1.68212	+5.08910	+7.4055
$\delta_{7.1}$	- .00354	+ .00095	+ .00040	+ .00076	+0.00494	+0.01497	
$\delta_{7.2}$		- .00034	+ .00008	+ .00016	+0.00109	+0.00319	
δ_7	- .00354	+ .00061	+ .00048	+ .00092	+0.00603	+0.01816	+0.0227

TABLE XIV

Errors in δ_4, δ_6, and δ_7 Caused by Errors in the Assumed Kelvin Temperature

T = Kelvin temperature resulting from the present investigation.
T_a = Kelvin temperature used in computing δ_4, δ_6, and δ_7; see Table II-7.

t, °C. (Int.)	$T - T_a$, °C.	t, °C. (Int.)	$T - T_a$, °C.
0	+0.005	200	+0.024
25	.001	250	.038
50	.000	300	.048
75	.002	356.58	.057
100	.005	400	.062
150	.013	444.6	.056

Run \ Correction	δ_4	δ_6	δ_7	Total
Error in units of 10^4 standard mm. of mercury caused by above errors in T				
200 Red at 0°C.	0.0	+0.3	0.0	+0.3
202 Red at 100°C.	0.0	+0.4	0.0	+0.4
323 Red at 444.6°C.	0.0	+9.5	0.0	+9.5

Approximate ice-point pressure of above runs = 600 mm.

TABLE XV

Error in H for Run 323 R

See Eq. (1).

Observed quantity	Probable error in observed quantity	10^4 x Probable error in H	Observed quantity	Probable error in observed quantity	10^4 x Probable error in H
M_1	0.001 mm.	10 mm.	S_2	0.001 mm.	10 mm.
M_2	0.001 mm.	10	m optical	0.5% errors	10
S_1	0.001 mm.	10			25

Total probable error in H is 33.5×10^{-4} mm.

TABLE XVI

Error in p' for Run 323 R

See Table IV.

Observed quantity	Probable error in observed quantity	10^4 x Probable error in p'	Observed quantity	Probable error in observed quantity	10^4 x Probable error in p'
1. Errors in Observed Quantities					
H	0.00335 mm.	33.3 mm.	ϵ_1	0.001 mm.	9.9 mm.
h_1	.005 mm.	0.8	ϵ_2	.001 mm.	9.9
h_2	.005 mm.	0.6	t_s	.1°C.	2.4
d_1	.1 mm.	6.0	t_{Hg}	.01°C.	28.4
d_2	.01 mm.	0.9	g_l	--	--
2. Errors in Properties of Materials					
a_{Hg}	1%	8.0 mm.	β_{Hg}	10%	3.4 mm.
α_s	10%(3.5°C.)	8.2	α_{Hg}	0.05%(0.5°C.)	0.7
$\rho_s g_l / 2E_s$	10%	0.8			

Total probable error in p' is 47.9 x 10^{-4} standard mm. of mercury.

TABLE XVII

Error in p for Run 323 R

See Tables VI to X.

Observed quantity	Probable error in observed quantity	10^4 x Probable error in in p	Observed quantity	Probable error in observed quantity	10^4 x Probable error in in p
1. Errors in Observed Quantities					
l_{bn}	0.1 mm.	0.1 mm.	t_b	0.002°C.	43.7 mm.
l_{1n}	0.1 mm.	0.1	t_1	0.5°C.	7.6
l_{2n}	0.1 mm.	0.2	t_2	0.5°C.	4.2
l_{3n}	0.1 mm.	0.2	t_3	0.5°C.	8.0
l_{4n}	0.1 mm.	0.2	t_4	0.1°C.	9.2
l_{5n}	0.1 mm.	0.2	t_5	0.01°C.	2.9
V_{bn}	0.1 ml.	0.8	d_2	0.1 mm.	0.5
V_{1n}	0.001 ml.	12.1	h_2	0.005 mm.	12.6
V_{2n}	0.001 ml.	21.7	h_3	0.002 mm.	25.7
V_{3n}	0.001 ml.	21.7	p'	0.005 mm.	50.3
V_{4n}	0.001 ml.	21.8	$p' - p_e$	0.5 mm.	0.5
V_{5n}	0.001 ml.	21.8			
2. Errors in Properties of Materials					
α_b	0.5%	60.0	α_1	1%	0.1
$\alpha_{b'}$	0.5%	0.0	a_{Hg}	1%	67.7
β_b	2.5%	1.0	B	2%(t_b), 10%(t_1)	7.9
γ_b	0.5%	0.0	α_v	0.1%	0.1

3. Constant Errors

Source of error	$10^4 \times \Delta p$
Stretch of dead spaces with variations in p'	+ 3.1 mm.
Use of α_b for graded seal	+ 9.9
Temperature scale employed (see Table XIV)	+ 9.5
Formulas	- 4.8

Total probable error in p is 128.2×10^{-4} standard mm. of mercury

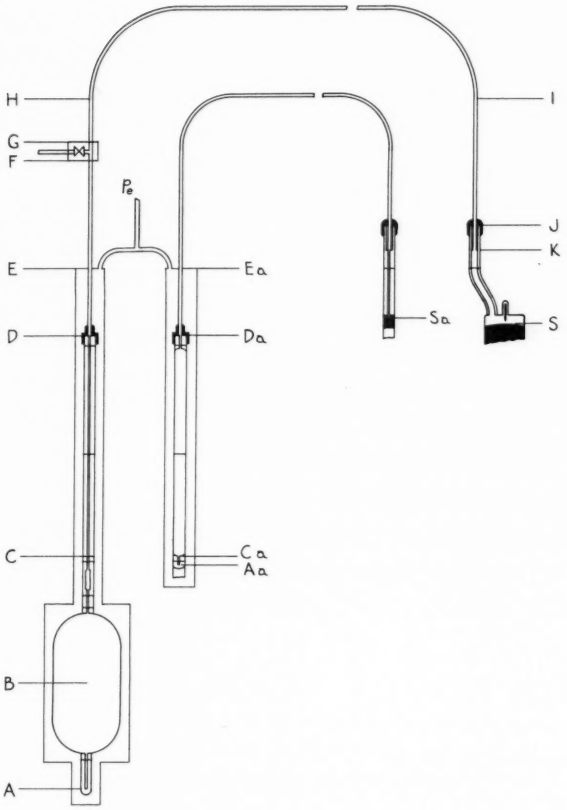

Figure 1.--Sketch of one of the thermometer systems.